MDX-U1/U1RDS

SERVICE MANUAL

US Model
Canadian Model
E Model
MDX-U1
AEP Model
MDX-U1RDS

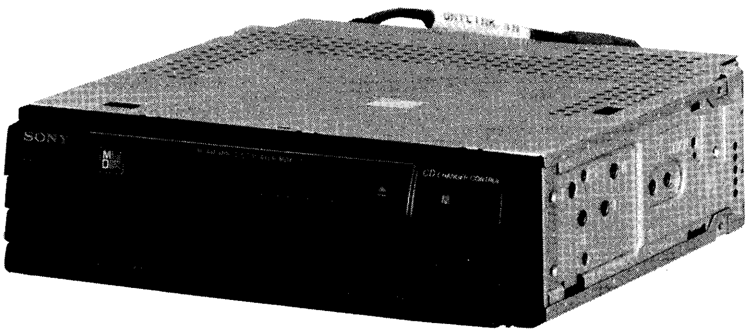

Photo: US, Canadian, E Model

MiniDisc

Model Name Using Similar Mechanism	NEW

SPECIFICATIONS

MiniDisc section

Signal-to-noise ratio	90 dB
Frequency response	20 – 20,000 Hz
Wow and flutter	Below measurable limit
Laser Diode Properties	
Material	GaAlAs
Wavelength	780 nm
Emission duration	Continuous
Laser output power	Less than 44.6 µW*

*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.

Tuner section

FM

Tuning range	US, Canadian, E: 87.9 – 107.9 MHz AEP: 87.5 – 108.0 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	12 dBf (75 ohms)
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 70 dB (mono)
Harmonic distortion at 1 kHz	0.5% (stereo), 0.3% (mono)
Separation	30 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	2 dB

AM

Tuning range	US, Canadian: 530 – 1,710 kHz E: 530 – 1,620 kHz (at 10 kHz step) 531 – 1,602 kHz (at 9 kHz step) AM tuning interval 9 kHz/10 kHz switchable AEP: MW: 531 – 1,602 kHz LW: 153 – 281 kHz
Antenna terminal	External antenna connector
Intermediate frequency	450 kHz
Sensitivity	35 µV 50 µV (LW)

General

Output lead	Power antenna relay control lead Power amplifier control lead
Tone controls	Bass ± 10 dB at 100 Hz Treble ± 10 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 178 × 50 × 170 mm (w/h/d), (7 1/8 × 2 × 6 3/4 inches) not incl. projecting parts and controls
Mounting dimensions	Approx. 178 × 50 × 153 mm (7 1/8 × 2 × 6 1/8 inches) (w/h/d), not incl. projecting parts and controls
Mass	Approx. 1.3 kg (2 lb 14 oz.)
Accessories supplied	Remote commander (1) Mounting hardware (1 set) Size AA (R6) battery (2) Power connecting cord (1) Front panel case (1) Optical cable adaptor (1)

使用時に添付資料も参照のこと
Refer to the additional documents

FM/AM MINIDISC PLAYER
MDX-U1

FM/MW/LW MINIDISC PLAYER
MDX-U1RDS

SONY®

Features

General

- Switchable **two color illumination (amber and green).**
- **Telephone-mute function** for decreasing the volume automatically with a telephone call.
- **Detachable-front panel** enables you to take the front panel away with you when you leave your car.
- **Caution alarm** will be activated if you turn off the ignition key without removing the front panel from the unit.
- **Digital calendar clock** with the month, date and time display.
- LCD with dot elements for a clear display.
- **DIGITAL IN jack** for connecting CD changer(s) equipped with digital outputs which is(are) compatible with the Sony UNILINK system.

MiniDisc Player Section

- **Title Function*** for displaying the disc and track titles while playing a MiniDisc.
- **4 Mbit Shock Resistant Memory** for preventing sound skipping.
- 1 bit DAC (Digital- to-Analog Converter) for a clear sound reproduction.
- **Shuffle play function** for playing tracks in random order.
- **Repeat play function** for playing a track or a MiniDisc repeatedly.
- **Intro scan function** for playing the first 10 seconds of each track.

*Only with the MiniDiscs whose titles are prerecorded. Some premastered MiniDiscs may not have been electronically labeled, therefore such MiniDiscs cannot have the titles displayed.

Tuner section

- Provided with a **FM diversity reception system** for a better radio reception.
- Up to 24 stations can be preset, 18 stations on FM and 6 stations on AM.
- **BTM (Best Tuning Memory) function** automatically selects and stores the stations with strong signals on the preset number buttons in the order of frequency.
- **Station memo function** for displaying the name of each radio station.

CD changer control section

(when the optional Sony CD changers are connected)

- Several CD changers can be connected and controlled by the use of the Sony source selector (not supplied) with the unit.
- CD changer(s) equipped with digital outputs can be connected.
- **Intro scan function** for playing the first 10 seconds of each track on every disc.
- **Repeat play function** for playing a track, a disc or a changer repeatedly.
- **Shuffle play function** for playing tracks in random order.
- **Custom file function** for displaying the title of each disc and setting the PLAY/SKIP mode on each track.

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This section is extracted from MDX-U1 instruction manual.

SECTION 1
GENERAL

Installation

Precautions

- Choose the mounting location carefully so that the unit will not interfere with the normal driving functions of the driver.
- Avoid installing the unit where it may be subject to high temperatures, such as from direct sunlight or hot air from the heater, or where it would be subject to dust, dirt or excessive vibration.
- Use only the supplied mounting hardware for a safe and secure installation.
- Be sure to detach the front panel before you start installing the unit.
- The unit is equipped with a cooling fan at the back. Make sure that its air vent is not covered when installing.

Mounting angle adjustment
Adjust the mounting angle to less than 20°.

Installation

Précautions

- Choisir soigneusement l'emplacement du montage, de manière que l'appareil ne gêne pas les mouvements du conducteur.
- Eviter d'installer l'appareil dans un endroit où il serait soumis à des températures élevées, comme en plein soleil ou à proximité d'une bouche d'air chaud, ou dans un endroit où il serait exposé à de la poussière, de la saleté ou des vibrations violentes.
- Pour garantir un montage sûr, n'utiliser que le matériel fourni.
- Veiller à détacher le panneau avant d'installer l'appareil.
- L'appareil est équipé d'un ventilateur de refroidissement à l'arrière. S'assurer que les fentes d'aération ne sont pas recouvertes au moment de l'installation.

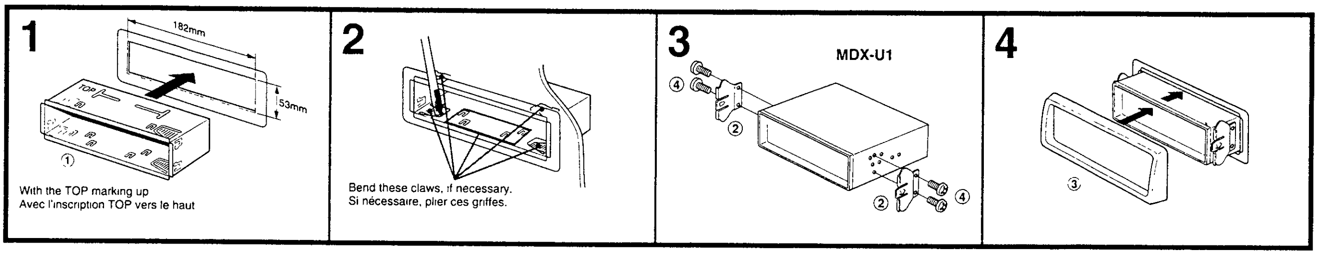
Réglage de l'angle de montage
Ajuster l'inclinaison à un angle inférieur à 20°.

Mounting Example

Installation in the dashboard

Exemple de montage

Encastrement dans le tableau de bord

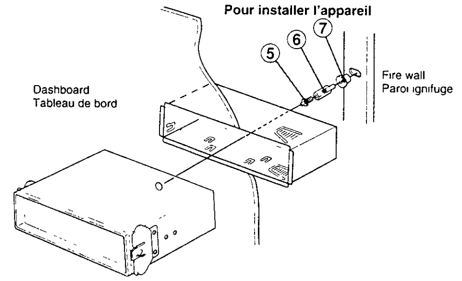


With the TOP marking up
Avec l'inscription TOP vers le haut

Bend these claws, if necessary.
Si nécessaire, plier ces griffes.

To support the unit

Pour installer l'appareil

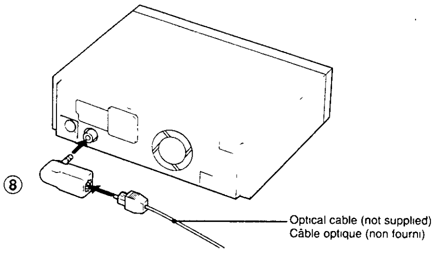


Adaptor for Sony Digital UNILINK System

Use the supplied adaptor ⑧ when connecting a CD changer which is compatible with the Sony digital UNILINK system. Connect the optical cable of the CD changer to the adaptor ⑧, and plug it into the jack on the back of the unit as illustrated.

Adaptateur pour le système numérique UNILINK de Sony

Utiliser l'adaptateur fourni ⑧ pour raccorder un changeur CD compatible avec le système numérique UNILINK de Sony. Raccorder le câble optique du changeur de CD à l'adaptateur ⑧, et brancher celui-ci sur la prise située à l'arrière de l'appareil, comme illustré.

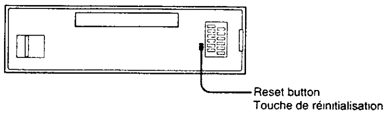


Reset Button

When the installation and connections are over, be sure to press the reset button with a ball-point pen etc. The reset button is located on the left of the connector on the unit side when the front panel is detached.

Touche de réinitialisation

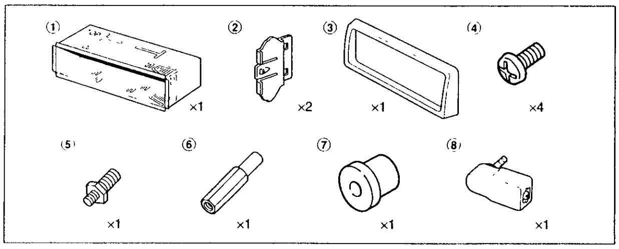
Lorsque l'installation et les connexions sont terminées, ne pas oublier d'actionner la touche de réinitialisation avec un stylo-bille, ou un objet similaire. Cette touche se trouve à gauche du connecteur sur le côté de l'appareil lorsque le panneau avant est détaché.



Supplied Mounting Hardware
Matériel de montage fourni

The numbers in the list are keyed to those in the instructions.

Les numéros de la liste correspondent à ceux mentionnés dans les procédures.



Connections

Connexions

Caution

- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the red power input lead only after all other leads are connected. And be sure to connect it to the positive 12 V power terminal which is energized when the ignition key is set to the accessory position.
- **Run all ground wires to a common ground point.**

Précautions

- Cet appareil est conçu pour fonctionner exclusivement sur courant continu de 12 V avec masse négative.
- Avant de procéder aux connexions, débrancher la borne de mise à la masse de la batterie du véhicule pour éviter tout court-circuit.
- Brancher le fil d'entrée d'alimentation rouge uniquement après que tous les autres fils ont été connectés. En outre, veiller à le raccorder à la borne d'alimentation positive de 12 V qui est alimentée quand la clé de contact est commutée sur la position accessoire.
- **Rassembler tous les fils de mise à la masse en un point de masse commun.**

Switches Requiring the Initial Settings

When the Unit is Used in a Car with No Accessory Position on the Ignition Key — POWER SELECT switch

The illumination on the front panel is factory-set to be turned on even when the unit is not being played. However, this setting may cause some car battery wear if **the unit is used in a car with no accessory position on the ignition key.**
To avoid this battery wear when using the unit in such a car, **set the POWER SELECT switch located at the bottom of the unit to the OFF position, then press the reset button.** The illumination is reset to stay off while the unit is not being played.

Note
The caution alarm for the front panel is not activated when the POWER SELECT switch is set to the OFF position.

When an FM Diversity Antenna is Used — FM DIVERSITY switch

This unit can be connected with diversity antennas. If you use this unit with the diversity antennas, **set the FM DIVERSITY switch located at the bottom of the unit to the ON position to activate the diversity system.**

When you do not use the FM diversity antennas

If you wish to connect a conventional rod antenna, be sure to connect it to the antenna connector of the unit marked "MAIN", and set the FM DIVERSITY switch to the OFF position.
Never connect the antenna to the connector marked "SUB", otherwise if the FM DIVERSITY switch is set to the ON position, the radio signals may not be received properly.

Note
The radio reception will be disturbed by noise if the connection of the antennas was not made properly or the FM DIVERSITY switch was not set correctly.

Interrupteurs nécessitant des réglages initiaux

Quand l'appareil est utilisé dans une voiture dont la clé de contact ne possède pas de position accessoire — Interrupteur POWER SELECT

L'éclairage du panneau avant est réglé en usiné de façon à s'allumer même quand l'appareil ne fonctionne pas. Cependant, ce réglage risque d'épuiser la batterie si **l'appareil est utilisé dans une voiture dont la clé de contact ne possède pas de position accessoire.**
Pour éviter ce désagrément, **commuter l'interrupteur POWER SELECT se trouvant sur le fond de l'appareil sur OFF, puis appuyer sur la touche de réinitialisation.** L'éclairage est réinitialisé pour rester éteint quand l'appareil n'est pas utilisé.

Remarque
Quand l'interrupteur POWER SELECT est commuté sur OFF, l'avertisseur du panneau avant ne fonctionne pas.

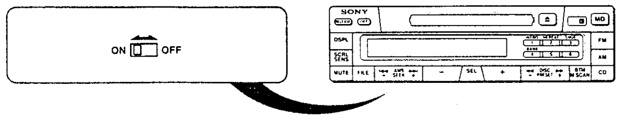
Quand une antenne à rayonnement zénithal réduit est utilisée — Interrupteur FM DIVERSITY

Cet appareil accepte le branchement d'antennes à rayonnement zénithal réduit. Pour pouvoir utiliser l'appareil avec ce type d'antenne, **commuter l'interrupteur FM DIVERSITY situé sur le socle de l'appareil sur ON, afin d'activer le système de diversité.**

Quand on n'utilise pas d'antenne à rayonnement zénithal réduit

Pour brancher une antenne conventionnelle, veiller à raccorder celle-ci au connecteur d'antenne de l'appareil, marqué "MAIN" et commuter l'interrupteur FM DIVERSITY sur OFF.
Ne jamais raccorder l'antenne au connecteur marqué "SUB", sinon, si l'interrupteur FM DIVERSITY est commuté sur ON, les signaux radiodiffusés seront mal reçus.

Remarque
La réception radio risque d'être parasitée si le raccordement des antennes a été mal réalisé ou si l'interrupteur FM DIVERSITY n'est pas correctement réglé.

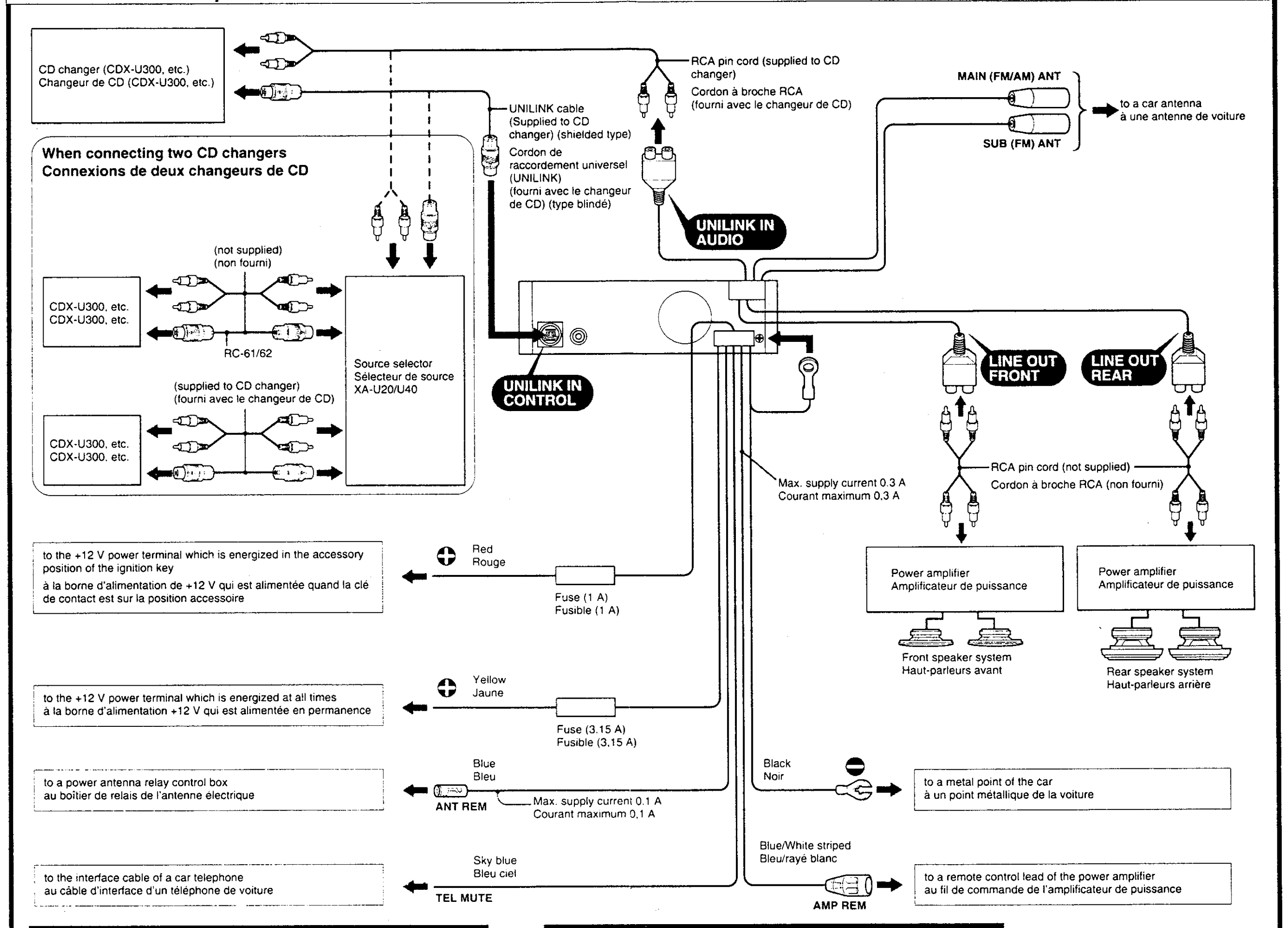

ON
OFF
SONY
DSPL
SCRL SENS
MUTE
FILE
AMS SEEK
SEL
DISC PRESET
BTM M.SCAN
FM
AM
CD
MD

Use a jeweler's screwdriver etc. to change the positions of the switches.

Utiliser un tournevis de joaillier, ou un objet similaire, pour changer la position des interrupteurs.

Connections of Example 1

Connexions de l'exemple 1


CD changer (CDX-U300, etc.)
Changeur de CD (CDX-U300, etc.)
When connecting two CD changers
Connexions de deux changeurs de CD
(not supplied)
(non fourni)
CDX-U300, etc.
CDX-U300, etc.
RC-61/62
(supplied to CD changer)
(fourni avec le changeur de CD)
CDX-U300, etc.
CDX-U300, etc.
Source selector
Sélecteur de source
XA-U20/U40
UNILINK cable (Supplied to CD changer) (shielded type)
Cordon de raccordement universel (UNILINK) (fourni avec le changeur de CD) (type blindé)
RCA pin cord (supplied to CD changer)
Cordon à broche RCA (fourni avec le changeur de CD)
UNILINK IN AUDIO
UNILINK IN CONTROL
MAIN (FM/AM) ANT
SUB (FM) ANT
to a car antenna
à une antenne de voiture
LINE OUT FRONT
LINE OUT REAR
Max. supply current 0.3 A
Courant maximum 0,3 A
RCA pin cord (not supplied)
Cordon à broche RCA (non fourni)
Power amplifier
Amplificateur de puissance
Power amplifier
Amplificateur de puissance
Front speaker system
Haut-parleurs avant
Rear speaker system
Haut-parleurs arrière
to the +12 V power terminal which is energized in the accessory position of the ignition key
à la borne d'alimentation de +12 V qui est alimentée quand la clé de contact est sur la position accessoire
Red
Rouge
Fuse (1 A)
Fusible (1 A)
to the +12 V power terminal which is energized at all times
à la borne d'alimentation +12 V qui est alimentée en permanence
Yellow
Jaune
Fuse (3.15 A)
Fusible (3,15 A)
to a power antenna relay control box
au boîtier de relais de l'antenne électrique
Blue
Bleu
ANT REM
Max. supply current 0.1 A
Courant maximum 0,1 A
Black
Noir
to a metal point of the car
à un point métallique de la voiture
to the interface cable of a car telephone
au câble d'interface d'un téléphone de voiture
Sky blue
Bleu ciel
TEL MUTE
Blue/White striped
Bleu/rayé blanc
AMP REM
to a remote control lead of the power amplifier
au fil de commande de l'amplificateur de puissance

Press the reset button after completing the connections.

Notes on the control leads
- The power antenna control lead (blue) supplies +12 V DC when you turn on the tuner.
- A power antenna without relay box cannot be used with this unit.

Les connexions achevées, appuyer sur la touche de réinitialisation.

Remarques sur les fils de contrôle
- Le fil de contrôle de l'antenne électrique (bleu) fournit un courant continu de 12 volts quand le tuner est mis sous tension.
- Une antenne électrique sans boîtier de relais ne peut être utilisée avec cet appareil.

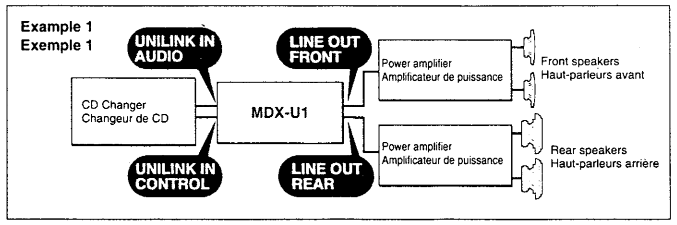
Connection Diagrams

- You can only connect the CD changer(s) which are compatible with the Sony UNILINK system.
- When you are connecting the Sony Mobile ES series CD changer XES-C1, you cannot connect it through the UNILINK IN AUDIO terminals of this unit. In this case, use the Sony digital UNILINK system connection featuring optical fiber cables.

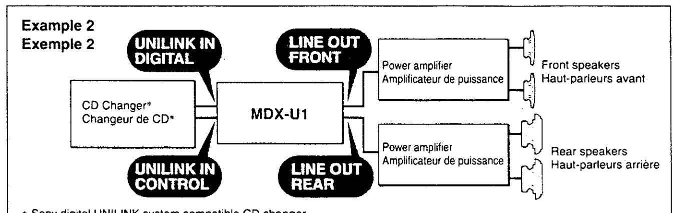
Schémas de connexion

- Seuls les changeurs de CD compatibles avec le système UNILINK de Sony peuvent être raccordés.
- Dans le cas du changeur de CD XES-C1 de la série Mobile ES de Sony, il ne peut pas être raccordé par les bornes UNILINK IN AUDIO de cet appareil. Utiliser des câbles en fibres optiques pour la connexion du système numérique UNILINK.

Example 1
Exemple 1

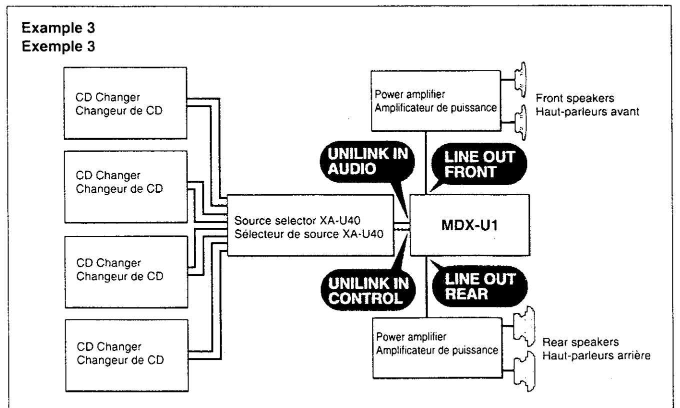

UNILINK IN AUDIO
LINE OUT FRONT
CD Changer
Changeur de CD
MDX-U1
Power amplifier
Amplificateur de puissance
Front speakers
Haut-parleurs avant
Power amplifier
Amplificateur de puissance
Rear speakers
Haut-parleurs arrière
UNILINK IN CONTROL
LINE OUT REAR

Example 2
Exemple 2


UNILINK IN DIGITAL
LINE OUT FRONT
CD Changer*
Changeur de CD*
MDX-U1
Power amplifier
Amplificateur de puissance
Front speakers
Haut-parleurs avant
Power amplifier
Amplificateur de puissance
Rear speakers
Haut-parleurs arrière
UNILINK IN CONTROL
LINE OUT REAR

- * Sony digital UNILINK system compatible CD changer.
- * Changeur de CD compatible avec le système numérique UNILINK de Sony.

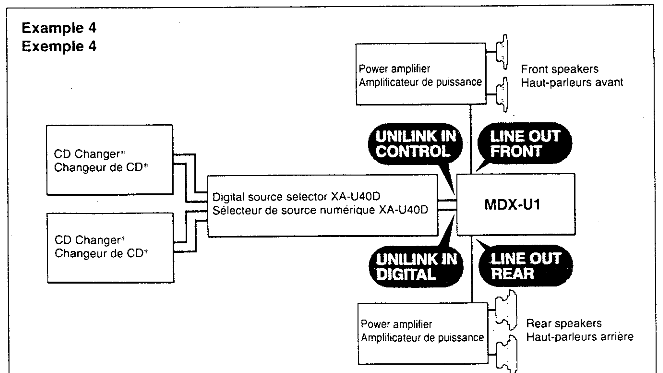
Example 3
Exemple 3


CD Changer
Changeur de CD
CD Changer
Changeur de CD
CD Changer
Changeur de CD
CD Changer
Changeur de CD
Source selector XA-U40
Sélecteur de source XA-U40
MDX-U1
UNILINK IN AUDIO
LINE OUT FRONT
UNILINK IN CONTROL
LINE OUT REAR
Power amplifier
Amplificateur de puissance
Front speakers
Haut-parleurs avant
Power amplifier
Amplificateur de puissance
Rear speakers
Haut-parleurs arrière

The use of the separately sold source selector XA-U20 or XA-U40 is necessary when connecting several CD changers.

Le sélecteur de source XA-U20 ou XA-U40, vendu séparément, est nécessaire pour raccorder plusieurs changeurs de CD.

Example 4
Exemple 4


Power amplifier
Amplificateur de puissance
Front speakers
Haut-parleurs avant
CD Changer*
Changeur de CD*
CD Changer*
Changeur de CD*
Digital source selector XA-U40D
Sélecteur de source numérique XA-U40D
MDX-U1
UNILINK IN CONTROL
LINE OUT FRONT
UNILINK IN DIGITAL
LINE OUT REAR
Power amplifier
Amplificateur de puissance
Rear speakers
Haut-parleurs arrière

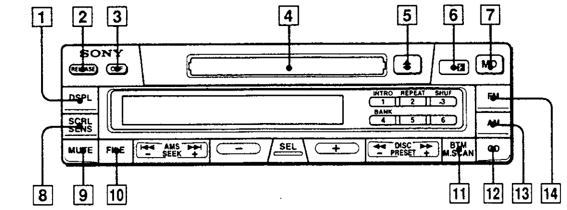
- * Sony digital UNILINK system compatible CD changer.
- * Changeur de CD compatible avec le système numérique UNILINK de Sony.

The use of the separately sold digital source selector XA-U40D is necessary when connecting several CD changers which are compatible with the Sony digital UNILINK system.

Le sélecteur de source XA-U40D, vendu séparément, est nécessaire pour raccorder plusieurs changeurs de CD qui sont compatibles avec le système numérique UNILINK de Sony.

Location and Function of Controls

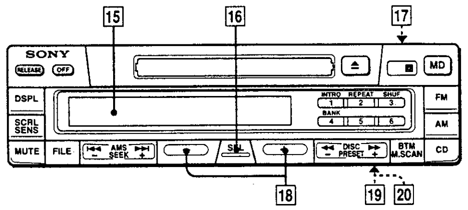
Main Unit


1
2
3
4
5
6
7
8
9
10
11
12
13
14
SONY
DSPL
SCRL SENS
MUTE
FILE
AMS SEEK
SEL
DISC PRESET
BTM M.SCAN
FM
AM
CD
MD

Refer to the pages in ● for details.

1. **DSPL (date/time set • display mode change) button ⑪⑫⑭⑰㉖㉙㊴**
2. **RELEASE (front panel release) button ⑩**
3. **OFF (power off) button**
4. **MiniDisc compartment ⑬**
5. **≙ (eject) button ⑭**
6. **Infrared receptor for the remote commander**
7. **MD (MiniDisc play) button ⑬**
8. **SCRL/SENS (Scroll/Sensitivity) button ⑭⑱**
9. **MUTE button**
   Press to mute the sound. Press again to restore the volume to the previous level. The function of this button will also be canceled when the (+) button is pressed.
10. **FILE (custom file) button ㉕㊱**
11. **BTM/M.SCAN (Best Tuning Memory/Memory Scan) button ⑭⑳㉓**
12. **CD (disc play/CD changer select) button* ㉙㉛**
    * When the CD changer(s) is(are) connected.
13. **AM (radio on) button ⑰**
14. **FM (radio on • FM1/FM2/FM3 band select) button ⑰**

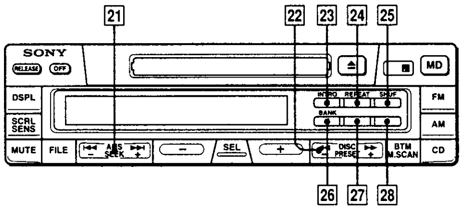
Location and Function of Controls


15
16
17
18
19
20
SONY
DSPL
SCRL SENS
MUTE
FILE
FM
AM
CD
MD
BTM M.SCAN

15. **Display window**
16. **SEL (control mode select/character set) button**
    Press to select the desired control mode: BAS (bass), TRE (treble), BAL (balance), FAD (fader) or VOL (volume).

Display window	Control mode	(−) SEL (+)	
		Press (−)	Press (+)
BAS	Bass control	For less bass	For more bass
TRE	Treble control	For less treble	For more treble
BAL	Balance control	To decrease the right-speakers' volume	To decrease the left-speakers' volume
FAD	Fader control	To decrease the rear-speakers' volume	To decrease the front-speakers' volume
VOL	Volume control	For less volume	For more volume

17. **Reset button (located on the left of the connector on the unit side when the front panel is detached)**
    Press this button with a ball-point pen etc. when the buttons of this unit do not function.
18. **(−) (+) (volume/bass/treble/balance/fader/character select) buttons**
    These buttons normally function as the volume control. To adjust other modes, press the (−) or (+) button within three seconds after selecting the desired mode with the SEL button. The control mode automatically goes back to the volume control mode in three seconds.
19. **POWER SELECT switch (located on the bottom of the unit)**
    See "POWER SELECT switch" in the Installation/Connections manual.
20. **FM DIVERSITY switch (located on the bottom of the unit)**
    See "FM DIVERSITY switch" in the Installation/Connections manual.



	During MiniDisc/CD play	During radio reception
21	**AMS (Automatic Music Sensor) button ⑮㉛**	**SEEK (automatic tuning) button ⑰㉒**
22	**DISC (manual search/disc search*) button ⑮㉚㉜**	**PRESET (preset search/manual tuning) button ⑲㉒㉔**
23	**INTRO (intro scan) button ⑯㉟**	**Preset number buttons ㉒㉔**
24	**REPEAT (repeat play) button ⑯㉞**	
25	**SHUF (shuffle play) button ⑯㉝**	
26	**BANK button* ㊷**	
27	–	
28	–	

* Only when the optional CD changer(s) is(are) connected.

Changing the illumination color of the control buttons

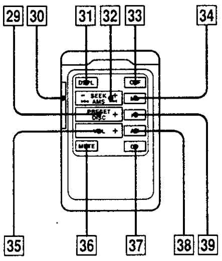
Press the INTRO 1 button while pressing the SEL button.

Muting the beep tone

Press the 6 button while pressing the SEL button. To obtain the beep tone again, press these buttons once more.

Location and Function of Controls

Remote Commander



Buttons of the same function as those on the main unit

	During MiniDisc/CD play	During radio reception
32	**AMS (automatic music sensor) button ⑮㉛**	**SEEK (automatic tuning) button ⑰㉒**

33 **OFF button**

34 **MD (MiniDisc play) button ⑬**

36 **MUTE button**

37 **CD (disc play/CD changer select) button ㉙㉛**

38 **AM (radio on) button ⑰**

39 **FM (radio on • FM1/FM2/FM3 band select) button ⑰**

Different function buttons

	During MiniDisc/CD play	During radio reception
29	**DISC (manual search*/disc search) button ⑮㉚**	**PRESET (preset search) button** ㉔**

* You cannot do the manual search during CD play.
** You cannot do the manual tuning with the remote commander.

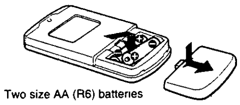
30 **M.ILL (memory illumination) switch**
To illuminate the buttons on the remote commander, slide down this switch. The illumination will go off automatically after approximately 15 seconds.

31 **DSPL (display mode change) button ⑭⑰㉖㉙㊴**

35 **VOL (volume control) button**

When the POWER SELECT switch is set to the OFF position, the unit cannot be operated with the remote commander unless one of the MD,FM,AM or CD buttons on the unit is pressed or a MiniDisc is inserted to activate the unit first.

Installing the Batteries



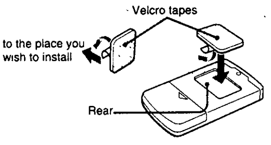
Two size AA (R6) batteries

Battery life
When the batteries become weak, you will not be able to operate the unit with the remote commander. Battery life is approx. six months although it depends on the way of use.

Notes on batteries
To avoid damage from battery leakage and corrosion:
- — insert the batteries with correct polarity
- — do not use an old battery with a new one, or different types of batteries together
- — remove the batteries when you do not use the unit for a long period of time
- — do not charge the batteries.

If any battery leakage occurs, replace the batteries with new ones after cleaning the battery compartment.

Installing the Supplied Remote Commander



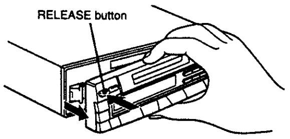
Install the remote commander with velcro tape in a desired place.

Notes
- Do not install or leave the remote commander in a location near any heat sources, or in a place subject to direct sunlight (especially on the dashboard in summer etc.).
- When you park the car in direct sunlight, detach the remote commander and place it in a location not subject to direct sunlight such as the glove-box.
- Before installing the remote commander, be sure to confirm whether you can remote control the unit from the place you intend to install.
- Before attaching the velcro tape, clean the surface.

Detaching and Attaching the Front Panel

Detaching the Front Panel

Before detaching the front panel, be sure to press the OFF button first. Then press the RELEASE button to open up the front panel and detach the panel by pulling it towards you as illustrated.

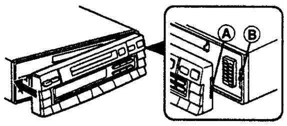

RELEASE button

Be sure not to drop the front panel when detaching it from the unit.

Note
The display window may become warm while the unit is operated, however, this is not a sign of a malfunction.

Attaching the Front Panel

Apply the right hand side of the front panel to the unit by attaching the part Ⓐ of the front panel to the part Ⓑ of the unit as illustrated and push until it clicks.

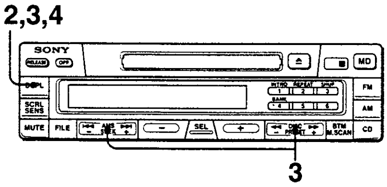


Do not press hard or give excessive pressure to the display window of the front panel.

Caution alarm
If you turn the ignition key to the OFF position without removing the front panel, the caution alarm will be activated and a beep tone will be heard for a few seconds (only when the POWER SELECT switch is set to the ON position).

Notes
- Make sure that the front panel is the right way up when attaching it to the unit as it cannot be attached upside down.
- Do not press the front panel hard against the unit when attaching it to the unit. It can be easily attached by pressing it lightly against the unit.
- Never leave the detached front panel in your car if it is parked in direct sunlight as there could be a considerable rise in temperature inside the car.
- When you carry the front panel with you, put it in the supplied front panel case.

Setting the Calendar Clock


2,3,4
SONY
RELEASE
OFF
MD
DSPL
SCRL SENS
INTRO REPEAT SHUF
BANK
FM
AM
MUTE
FILE
AMS SEEK
SEL
DISC PRESET
BTM M.SCAN
CD
3

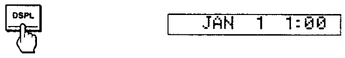
The clock section has a 12-hour digital indication.

How to Set the Time

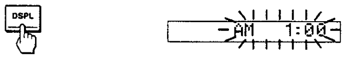
For example, set it to 10:08 A.M.

1 **Turn the ignition key to the ON position.**

2 **Press the DSPL button if the clock indication does not come on.**

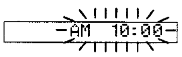

DSPL
JAN 1 1:00

3 **Press the DSPL button for more than two seconds.**

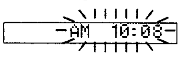


While holding down the DSPL button

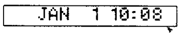
Press |◀◀ AMS ▶▶| – SEEK + **to set the hour digits**
(to go back) (to go forward)



Press ◀◀ DISC ▶▶ – PRESET + **to set the minute digits**
(to go back) (to go forward)

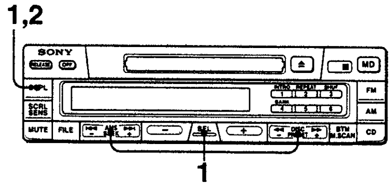


4 **The calendar clock will start activating when you take your finger off the DSPL button.**



Notes
- You cannot set the calendar clock with the supplied remote commander.
- If the POWER SELECT switch of the unit is set to the OFF position, the calendar clock cannot be set unless the power is turned on. Set the calendar clock after you turn on the radio, start CD play, or MiniDisc play.

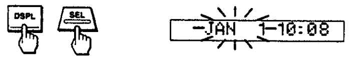
Setting the Calendar Clock


1,2
SONY
DSPL
SCRL SENS
INTRO REPEAT SHUF
BANK
FM
AM
MUTE
FILE
AMS SEEK
SEL
DISC PRESET
BTM M.SCAN
CD
1

How to Set the Date

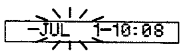
For example, set it to July 17.

1 **While holding down the DSPL button for more than two seconds as described in step 3 of "How to Set the Time", press the SEL button.**

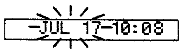

DSPL
SEL
-JAN 1-10:08

While holding down the DSPL button

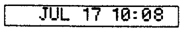
Press |◀◀ AMS ▶▶| – SEEK + **to set the month.**
(to go back) (to go forward)



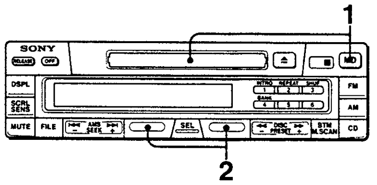
Press ◀◀ DISC ▶▶ – PRESET + **to set the day.**
(to go back) (to go forward)



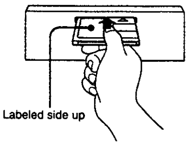
2 **The calendar clock will start activating when you take your finger off the DSPL button.**



Playing a MiniDisc


1
SONY
DSPL
SCRL SENS
INTRO REPEAT SHUF
BANK
FM
AM
MUTE
FILE
AMS SEEK
SEL
DISC PRESET
BTM M.SCAN
CD
2

1 **Insert a MiniDisc to start playback.**


Labeled side up

The MiniDisc will be loaded and the title of the MiniDisc* will be displayed on the display window momentarily then playback will start from the first track with its title being displayed.

If a MiniDisc is already inserted, press the MD button.

After the title of the MiniDisc has been displayed, the title of the currently played track* will be displayed. If the title is too long (more than 12 characters)** it will be scrolled across the display window.

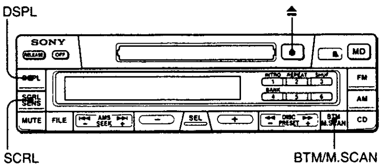
2 **Adjust the volume with the ⊖ or ⊕ button.**

When the last track on the MiniDisc is over
The track number indication will return to "1" and the playback will restart from the first track of the MiniDisc.

Notes
- If a MiniDisc is already loaded in the unit, never try to insert another MiniDisc. Doing so may damage the unit.
- Do not insert a MiniDisc with its labeled side down.

* Only if these titles are prerecorded on the MiniDisc.

**However, if the title contains more than 32 characters (including blank spaces), only up to the 32nd character will be displayed.



Ejecting the MiniDisc

Press the ⏏ (eject) button.

To get the calendar clock display during MiniDisc play

Press the DSPL button until the calendar clock display appears.

To manually get the title of the currently played MiniDisc or the track displayed

Press the DSPL button until the desired display appears on the display window.

If the currently played MiniDisc is not prerecorded with these data, the display will not change.
If the title is too long, you can have it scrolled* across the display window by pressing the SCRL button.

To get the date of the recording of the currently played MiniDisc

Press the BTM/M.SCAN button while playing back a MiniDisc.
The date of recording will be displayed for approx. three seconds.

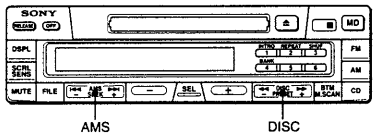
This function will work only if the date of recording is registered on the MiniDisc.

Every time the DSPL button is pressed during playback, the display mode of the unit changes cyclically as follows:

↓
Track title display mode
↓
MiniDisc title display mode
↓
Elapsed playing time display mode
↓
Calendar clock display mode

- Up to 32 characters only.

Locating a Desired Track or Part of a Track

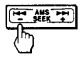


You can use this function to quickly locate your desired track or a part of a track.

Locating the Beginning of a Track
— AMS function

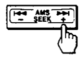
Press the AMS button while playing a MiniDisc.

To listen to the current track again from the beginning ➔



If the button is kept pressed, the beginnings of the previous tracks will be located.

To listen to the next track from the beginning ➔



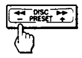
If the button is kept pressed, the beginnings of the succeeding tracks will be located.

Note
When you keep pressing the AMS button and come to either the beginning or end of a MiniDisc, you will not be able to go any further.

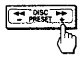
Searching for a Desired Part of a Track
— Manual Search

Keep the DISC button pressed while playing a MiniDisc.

To fast reverse ➔



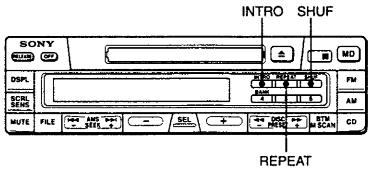
To fast forward ➔



The elapsed playing time of the track will be displayed on the display window during the manual search.

Note
If the DISC button is kept pressed and the end of the MiniDisc has been reached, " ¬¬ ¬¬ " will appear on the display window. Likewise if the beginning of the MiniDisc has been reached, " ⌊⌊ ⌊⌊ " will appear on the display window.

Playing in Other Modes



Playing the Tracks Randomly
— Shuffle Play Function

Press the SHUF 3 button to get the "SHUF 1" indication while playing the MiniDisc.
Every track on the MiniDisc will be played randomly once.
To cancel the mode, press the button again.

Playing a MiniDisc Repeatedly
—Repeat Play Function

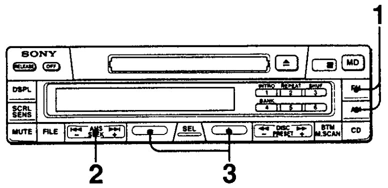
Press the REPEAT 2 button to get the "REP 1" indication while playing the MiniDisc.
When the currently played track is over, that track will be played again from the beginning.
To cancel the mode, press the button again.

*Searching for a Desired Track by Listening to the First 10 seconds of Each Track — Intro Scan Function**

Press the INTRO 1 button to get the "INTRO" indication while playing the MiniDisc.
The first 10 seconds of every track on that MiniDisc will be played in order.
To cancel the mode, press the button again.

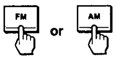
- *If the INTRO button is pressed while the unit is in the shuffle play mode, the first 10 seconds of every track will be played randomly.

Searching for the Stations Automatically
— Automatic Tuning



If you do not know the frequency of the station you wish to tune in, it is useful to use the Automatic Tuning function.

1 **Select the desired band.**



2 **Press the SEEK button.**

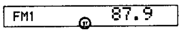
AMS SEEK
AMS SEEK

For lower frequencies For higher frequencies

The scanning stops when a station is received. Press the button repeatedly until the desired station is received.

3 **Adjust the volume with the − or + button.**

While receiving FM broadcasting

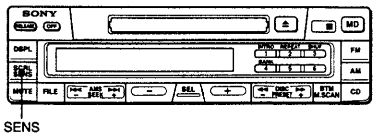


The "ST" indication will appear when an FM stereo program with sufficient signal strength is tuned in. The program will be received in stereo.

Getting the calender clock indication while listening to the radio
Press the DSPL button. Each time you press the button, the display mode changes as follows:

↓
Station name display mode*
↓
Frequency display mode
↓
Calender clock display mode

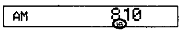
- *Refer to page 26 for the station name display mode.



Avoiding the Automatic Tuning from Stopping on Stations Too Frequently

— Local Seek Mode

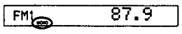
Press the SCRL SENS button lightly to get the "LCL" indication.



The mode changes to the local seek mode where only the stations with relatively strong signals are tuned in. It functions only when the Automatic Tuning is in operation.

If FM Stereo Broadcasting is Difficult to Receive — *Monaural Mode*

Press the SCRL SENS button lightly to get the "MONO" indication.



The sound will improve, but it will become monaural.

Each time you press the SENS button, the mode changes as follows:

While receiving FM broadcasting

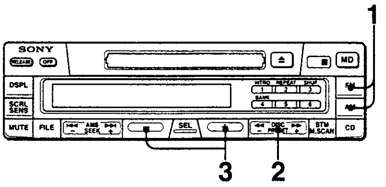
↓
LCL
↓
MONO
↓
cancel
(Normal mode)

While receiving AM broadcasting

↓
LCL
↓
cancel
(Normal mode)

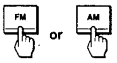
Tuning in by Adjusting the Frequency

— Manual Tuning



Use the Manual Tuning if you know the frequency of the desired station.

1 **Select the desired band.**



2 **Press the PRESET button for more than 0.5 second.**

For lower frequencies For higher frequencies

To change the frequency rapidly, keep the button pressed.

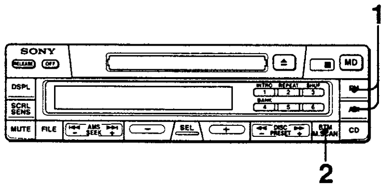
3 **Adjust the volume with the ⊖ or ⊕ button.**

Note
You cannot use the Manual Tuning with the remote commander.

PREVENTING ACCIDENTS!
While you are driving, the use of the Automatic Tuning and the BTM function is recommended in favor of the Manual Tuning.

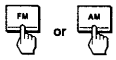
Memorizing the Stations Automatically

— BTM (Best Tuning Memory) Function



Clearest receiving stations are automatically searched and memorized on each band (FM1, FM2, FM3 and AM). Up to 6 stations on each band can be stored on the preset number buttons 1 to 6 in order of frequency.

1 **Select the desired band.**



2 **Keep the BTM button pressed for more than two seconds.**

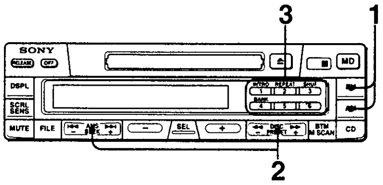
The receivable frequencies of FM1, FM2 and FM3 are the same
Therefore, 18 stations can be memorized on FM.

The BTM function — how this function operates

This function starts by searching stations from the lowest frequency of the currently tuned in band. When a station is located, it will be stored in the memory on the preset number button whose number is indicated on the display window. If there is no preset number indicated, it will be stored in the memory on the preset number button 1 onward. It continues to store the stations in the memory until all the preset number buttons are occupied.
For example, if the FM1 band was selected, it will continue until the preset number button 6 on the FM3 band is occupied.
When all the preset number buttons are occupied with the memories before the highest receivable frequency is searched, the unit will start searching for higher frequencies from where it was left off. This is to check if there are any more stations with clearer receptions than the ones already stored in the memory.
If a station with a clearer reception is found, the unit will store it in the memory in place of a station with an inferior reception.
Lastly, it rearranges all the stations in order of frequency from the lowest and stores them in the memory. The whole operation is now completed. The stations with clearer receptions are stored in the memory on the preset number buttons in order of frequency.

Notes
- There may be cases where there are not enough receivable stations due to the lack of stations in the vicinity or weak broadcasting signals. In such cases, the BTM operation may stop without all the buttons being occupied with memories.
- If you start the BTM operation from the FM1 band, it will continue to store stations in the memory on the FM3 band. Care must be taken if you wish to keep the stored stations on the FM3 band.
- If you start the BTM operation from the FM3 band, it will stop when all the memories on the FM3 band are occupied. It will not continue to the FM1 band.

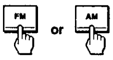
Memorizing Only the Desired Stations



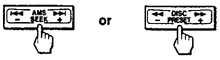
Up to 6 stations on each band (FM1, FM2, FM3 and AM) can be stored in the memory in order of your choice.

For example, store a station on the preset number button 1.

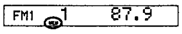
1 **Select the desired band.**



2 **Tune in to the station which you wish to store on the preset number button (page 17 or 19).**



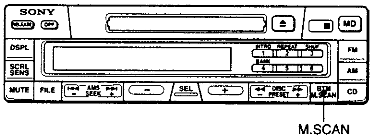
3 **Keep the preset number button pressed for about two seconds until the "MEM" indication comes on the display window.**



The number of the preset number button of which you are pressing now comes on the display window. When the "MEM" indication comes on, the station is stored in the memory and the operation is now completed. The "MEM" indication goes off after a while.

Repeat the same procedure to store other stations.

Only one station per band (FM1, FM2, FM3 and AM) can be stored in the memory on each preset number button
If you try to store another station on the same preset number button, the previously stored station will be erased.

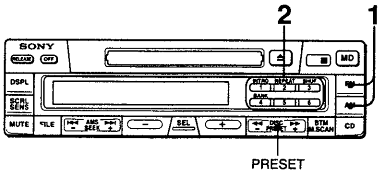


Checking All the Memorized Stations in Order — *Memory scan*

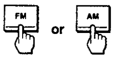
Press lightly.

The tuner will receive in order, all the stations stored in the memory for five seconds each.

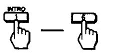
Receiving Stations Stored in the Memory



1 **Select the desired band.**



2 **Press the preset number button lightly on which the desired station is to be stored.**



Notes
- There may be cases where even the stations which are stored in the memory cannot be received due to weak signals in the vicinity of your car.
- If you keep the preset number button pressed for more than two seconds, the currently received station will be memorized. To receive the previously memorized station, make sure that the preset number button is pressed lightly.

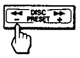
Receiving in Order the Stations Stored in the Memory — *Preset Search Function*

DISC
PRESET

(Press lightly.)

The number will advance in the following order:

1 ➡ 2 ➡ 3 ➡ 4 ➡ 5 ➡ 6 ➡ 1 ➡ ...
(number of the preset number buttons)



(Press lightly.)

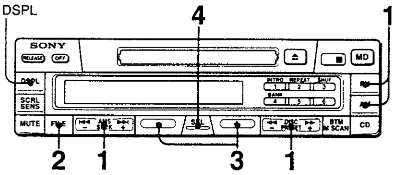
The number will reverse in the following order:

1 ➡ 6 ➡ 5 ➡ 4 ➡ 3 ➡ 2 ➡ 1 ➡ ...

Note
Make sure that you press the PRESET button lightly. If you keep it pressed fore more than 0.5 second, the unit will enter the Manual Tuning mode.

Displaying the Name of Each Station

— *Station Memo Function*

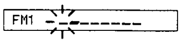


You can store the names of radio stations in the memory of tuner. The name of station can be displayed on the display window while it is tuned in.

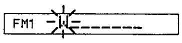
Storing the Station Names in the Memory of the Tuner

1 **Tune in to a station whose name you wish to register.**

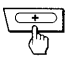
2 **Press the FILE button for more than two seconds to enter the name edit mode.**



3 **Press either the ⊖ or ⊕ button to select the desired characters.**



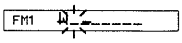
Each time you press the ⊖ or ⊕ button, characters will come on in the following order:



➡ _→A→B→C→...→X→Y→Z→0→1→2→3→...

➡ _→.→(→)→\→/→*→-→+→9→...

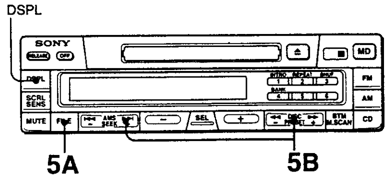
4 **Press the SEL button after locating the desired character.**



The flashing part will move to the next space on the right.
Repeat steps 3 and 4 to enter the entire name.
Up to eight characters only can be used per name.

Notes
- If you press the SEL button when the eighth character (farthest right character) is flashing, the flashing part goes back to the first character (farthest left character).
- If you wish to put a blank space after a character, select "_" (under-bar).

Displaying the Name of Each Station



5 **To register the name, use one of the following two methods.**

A **Press the FILE button for more than two seconds.**

The unit will go back to the normal mode.

B **Tune in to another station by pressing the SEEK or MANU button and repeat the procedures.**

You can also change the band and repeat the process.

Notes

- if you turn off the tuner before you complete this procedure, the name you have just entered will not be registered.
- You can store up to 40 names, but if you try to enter more, the "MEMORY FULL" indication will come on the display window and you will not be able to register them. You can register more names after erasing some of the existing names.

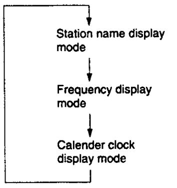
Displaying the Station Names

While listening to the radio, press the DSPL button to enter the name display mode.

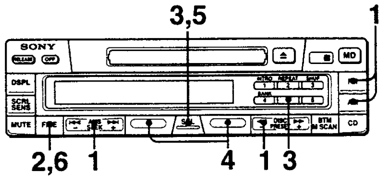
FM1 WRKISS

If the name of the station is not registered, "--------" will come on the display window.

Each time you press the DSPL button while listening to the radio
The display mode changes cyclically as follows:



Editing the Registered Station Names



Erasing the Station Names

1 **Turn the radio on and tune in to any station.**

2 **Press the preset FILE button for more than two seconds to enter the name edit mode.**

The currently received station will come on the display window.

3 **Press the preset number button 5 while pressing the SEL button.**

4 **Press either the ⊖ or ⊕ button to search the names you wish to erase.**

or

The station names stored in the memory of the tuner will come on the display window in the same order as they were registered*.

5 **Press the SEL button for more than two seconds to erase the displayed name.**

Repeat steps 4 and 5 to erase the other station names.

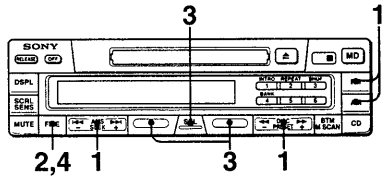
6 **Press the FILE button for more than two seconds.**

The unit will go back to the normal mode.

The alternative method to erase the name
In the step 3 of "Changing the Station Names" (page 28), put the eight under-bars ("＿"), then press the FILE button for more than two seconds. The displayed station name will be erased.

* If you have erased some of the titles before, they will not come on in the same order as they were registered.

Editing the Registered Station Names



Changing the Station Names

1 **Tune in to the station whose name you wish to change.**

2 **Press the FILE button for more than two seconds to enter the name edit mode.**

The currently received station will come on the display window.

3 **Press the SEL button to make the part you wish to edit flashing. Select the characters using the ⊖ or ⊕ button.**

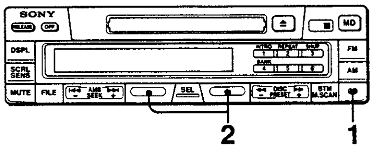
or

If you wish to change the names of other stations, repeat steps 1 to 3 on the stations after tuning in to them with the SEEK or MANU button.

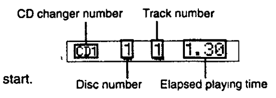
4 **Press the FILE button for more than two seconds.**
The new station names are registered.

Listening to the CD Play

— When Optional Sony CD Changers are Connected



1 **Press the CD button.**

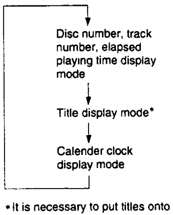


CD play will start.

2 **Adjust the volume with the ⊖ or ⊕ button.**

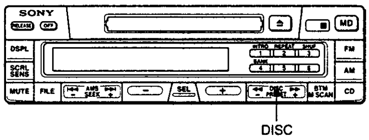
If it is set in the normal playing mode, after the end of a disc, the disc with the next number shown will be automatically played. If two or more CD changers are connected, after the end of the last disc, the first disc in the CD changer with the next number shown will be played. The order of the CD play can be rearranged by changing the playing modes. For details, see "Playing in Other Modes." (page 33)

Getting the calender clock display while listening to a CD
Press the DSPL button. Each time you press the button, the display mode will change cyclically as follows:


Disc number, track number, elapsed playing time display mode
Title display mode*
Calender clock display mode

* It is necessary to put titles onto the discs in advance. See pages 36 and 37 for details.

Locating a Desired Disc, Track or Part of a Track



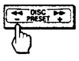
You can use this function to quickly locate your desired disc, track or part of the track.

Searching Your Desired Discs in Turn

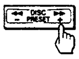
— *Disc Search*

Press the DISC button lightly during CD play.

To search previous disc numbers ➔

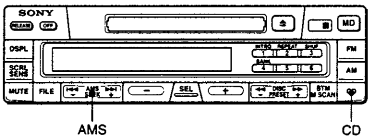


To search the disc numbers ahead ➔



You can search a disc by displaying the titles of the discs registered with the Custom File Function. For details, see page 36.

Note
Make sure that you press the DISC button lightly. If you keep it pressed, the unit will enter the Manual Search mode.



Listening to the Discs in Another CD Changer *(when two or more CD changers are connected)*

Press the CD button during CD play.

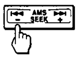
The CD changer number changes.

Locating the Beginning of a Track

— *AMS Function*

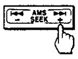
Press the AMS button during CD play.

To listen to the current track again from the beginning ➔



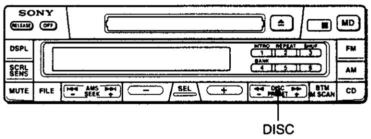
If the button is kept pressed, the beginnings of the previous tracks will be located.

To listen to the next track from the beginning ➔



If the button is kept pressed, the beginnings of the succeeding tracks will be located.

Note
When you keep pressing the AMS button and come to either the beginning or end of a disc, you will not be able to go any further.

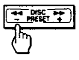


Searching for a Desired Part of Track

— *Manual Search*

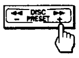
Keep the DISC button pressed during CD play.

To go back ➔



(Keep on pressing)

To go ahead ➔

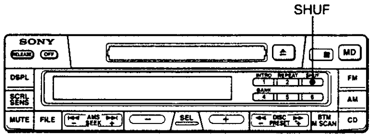


(Keep on pressing)

The elapsed playing time of the track will be displayed on the display window during the manual search.

Note
You cannot use the Manual Search with the remote commander.

Playing in Other Modes



Playing the Discs Randomly

— *Shuffle Play Functions*

Playing the tracks on the currently selected disc randomly — Disc shuffle play

Press the SHUF 3 button to get the "SHUF 1" indication during CD play.

When all the tracks on a disc have been played, it goes on to the next disc.

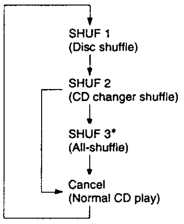
Playing every track on every disc in the currently selected CD changer randomly — CD changer shuffle play

Press the SHUF 3 button to get the "SHUF 2" indication during CD play.

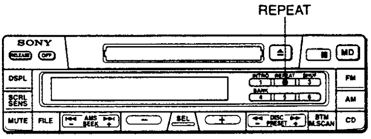
Playing every track on every disc in all CD changers connected randomly — All shuffle play (when two or more CD changers are connected)

Press the SHUF 3 button to get the "SHUF 3" indication during CD play.

The function of the SHUF button changes cyclically as follows:



* All-shuffle play (SHUF 3) mode functions only when two or more changers are connected to the unit. When only one changer is connected, the "SHUF 3" indication will not be displayed. In this case, if you press the SHUF button again while the "SHUF 2" indication is being displayed, the shuffle play will be canceled.



Playing a Disc Repeatedly

— Repeat Play Functions

Playing the currently selected track repeatedly — Track repeat

Press the REPEAT 2 button to get the "REP 1" indication during CD play.

When the track is over, the CD play will be repeated from the beginning of that track.

Playing the currently selected disc repeatedly — Disc repeat

Press the REPEAT 2 button to get the "REP 2" indication during CD play.

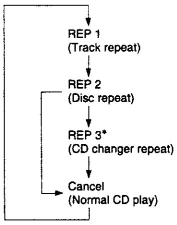
When the last track of the currently selected disc is over, the CD play will be repeated from the beginning of that disc.

Playing the discs in the currently selected CD changer repeatedly — CD changer repeat (when two or more CD changers are connected)

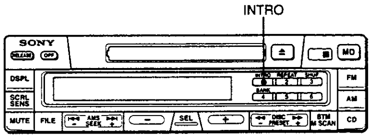
Press the REPEAT 2 button to get the "REP 3" indication during CD play.

When the last disc of the currently selected CD changer is over, the CD play will be repeated from the first disc in the currently selected CD changer.

The function of the REPEAT button changes cyclically as follows:



- * CD changer repeat (REP 3) mode functions only when two or more changers are connected to the unit. When only one changer is connected, the "REP 3" indication will not be displayed. In this case, if you press the REPEAT button again while the "REP 2" indication is being displayed, the repeat play will be canceled.



Searching for a Desired Track by Listening to the First 10 Seconds of Each Track

*— Intro Scan Function**

Press the INTRO 1 button during CD play.

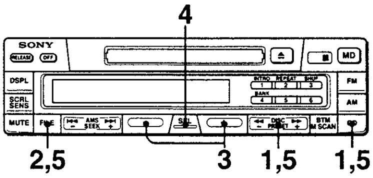
The first 10 seconds of all the tracks on the currently selected disc will be played in order.
When the first 10 seconds of the last track on a disc is played, it will move on the the next disc.
When the first 10 seconds of the last disc in the first CD changer has been played, the first disc in the next CD changer will be played (only when two or more CD changers are connected).

- * If the INTRO button is pressed while the unit is in the shuffle play mode, the first 10 seconds of every track will be played randomly.

When you find the desired track
Press the INTRO button once more. The intro scan function will be canceled and you can continue to listen to the track.

Displaying the Title of Each Disc

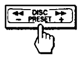
— Disc Memo Function



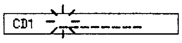
You can put a title of your own choice to a disc (one title per disc). The title can be displayed on the display window while the disc is being loaded and played.

Putting Your Personalized Titles onto the Discs

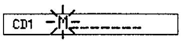
1 **Play the disc that you wish to title.**



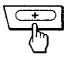
2 **Press the FILE button for more than two seconds to enter the name edit mode.**



3 **Press either the ⊖ or ⊕ button to select the desired characters.**



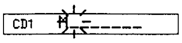
Each time you press the ⊖ or ⊕ button, characters will come on in the following order:



➡ _→A→B→C→...→X→Y→Z→0→1→2→3→...

➡ _→.→〈→〉→\→/→*→−→+→9→...

4 **Press the SEL button after locating the desired character.**



The flashing part will move to the next space on the right.
Repeat steps 3 and 4 to enter the entire titles.
Up to eight characters only can be used per disc.

Notes

- If you press the SEL button when the eighth character (farthest right character) is flashing, the flashing part goes back to the first character (farthest left character).
- If you wish to put a blank space after a character, select "_" (under-bar).

5 **To register the title, use one of the following methods ① through ④.**

① Press the FILE button for more than two seconds.

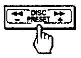
The unit will go back to the normal CD playing mode.

② Press the FILE button lightly.

(Press lightly.)

The unit enters the PLAY/SKIP mode in which the play and skip modes can be set. (Continue to step 4 in "Setting the Play and Skip Modes on the Discs" of page 40.)

③ Press the DISC button lightly.



You can change the disc and continue to put the titles to the discs.

(Press lightly.)

④ Press the CD button. (only when two or more CD changers are connected)

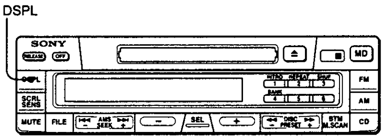
You can go to the next CD changer and the unit will go back to the normal playing mode.

Displaying the Title of Each Disc

Where are the contents of the custom file stored?
The information registered in the custom file will be stored in the memory of currently selected CD changer. You can play a custom-filed disc in another CD changer and use the custom file function as long as they are connected to the currently selected CD changer with the UNILINK system.

You can register the maximum of 110 discs on one CD changer
If you try to register more than 110 discs, the unit will display "MEMORY FULL" on the display window and will not accept the command for custom-filing. In this case, you will have to erase the memory of the other discs before you enter the new ones. See page 44 for details on erasing the memory.

When two or more CD changers are connected
The information registered in the custom file can be retrieved by other CD changers using the communication signals sent between the CD changers provided that they are connected by UNILINK cables.



Displaying the Title

While the disc is playing, press the DSPL button to enter the title display mode.

CD1 MADONNA

If the title of a disc is not registered, "- - - - - - - -" will come on the display window.

While loading the discs
Whatever the display mode is, the indication automatically changes as follows:

Title of the disc (2 seconds) ⟶ Disc and track number (2 seconds) ⟶ Currently selected display mode

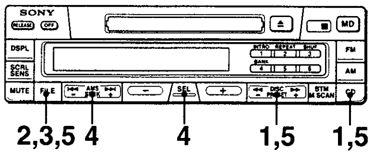
The registered titles of the discs may not come on the display window immediately during loading. This occurs because the unit displays the title after identifying the disc by reading the TOC* (Table of Contents) information of the disc. Therefore, while the CD changer is loading the disc for the first time, the registered title of the disc cannot be displayed. Once the disc has been loaded and played, the TOC information would have been read and the title will be displayed even while the disc is being loaded.

Each time you press the DSPL button while the disc is playing
The indication on the display window will change cyclically as follows:

↓
Disc number, track number, elapsed playing time display mode
↓
Title display mode
↓
Calender clock display mode

* The TOC information of the disc contains the total length of playing time and the codes to search the beginning and end of each track, and so on.

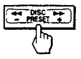
Playing Selected Tracks on a Disc *— Bank Function*



You can listen to only the desired tracks by using this function.

Setting the Play and Skip Modes on the Discs

1 **Play the disc to which you wish to set these modes.**



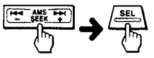
2 **Press the FILE button for more than two seconds and put the titles onto the discs.**

See page 36 for details about putting on a title. If the title has already been registered, go to step 3.

3 **Press the FILE button lightly to enter the PLAY/SKIP edit mode.**
When the unit enters the PLAY/SKIP edit mode, the indication on the display window will look like the illustration below.

CD1 5 1 PLAY

4 **Press the AMS button to select the track number you wish to skip and press the SEL button.**



CD1 5 3 SKIP

The indication changes from "PLAY" to "SKIP". If you wish to return to "PLAY", press the SEL button again.

Repeat the operation in this step to set either the "PLAY" or "SKIP" mode on all the tracks.

Notes
- When the title is not registered, you cannot enter the PLAY/SKIP edit mode even if you press the FILE button.
- You can only set the "SKIP" mode onto up to 24 tracks. If a disc has more than 24 tracks, you will not be able to set the SKIP mode on the tracks after the 24th track.
- You cannot set the SKIP mode onto all of the tracks on a disc.

5 **To register the settings, use one of the following methods ① to ④.**

① **Press the FILE button for more than two seconds.**

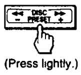
The unit will go back to the normal CD playing mode.

② **Press the FILE button lightly.**

(Press lightly.)

The unit will re-enter the name edit mode. See page 36.

③ **Press the DISC button lightly.**



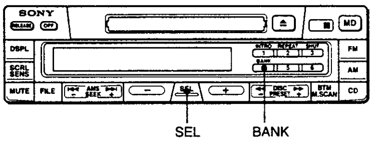
(Press lightly.)

You can change the disc and continue to put the titles to the discs.

④ **Press the CD button (only when two or more CD changers are connected).**

You can go to the next CD changer and the unit will go back to the normal playing mode.

Playing Selected Tracks on a Disc

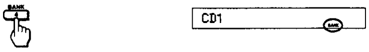


You can listen to only the desired tracks by using this function.

Playing with the Bank Function

To play the tracks with "PLAY" settings

Press the BANK button during CD play.



The "BANK" indication will come on the display window. The unit will start playing the tracks with "PLAY" settings which have been set by the PLAY/SKIP mode.

To go back to the normal playing mode
Press the BANK button again.

To play the tracks with "SKIP" settings

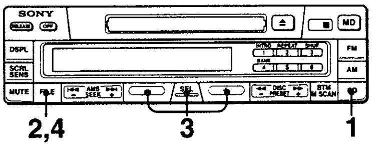
Press the BANK button while pressing the SEL button.

SEL
BANK
CD1

The "BANK" indication will come on the display window. The unit starts playing the tracks with "SKIP" settings which have been set by the PLAY/SKIP mode.

To go back to the normal playing mode
Press the BANK button while pressing the SEL button.

Editing a Custom File



When you change the title, the PLAY/SKIP settings of the Bank function will not be erased at the same time.

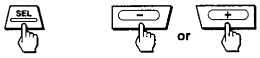
Changing the Title and the PLAY/SKIP Settings

1 **Play the disc you wish to edit.**

2 **Press the FILE button for more than two seconds to enter the name edit mode.**

The title of the currently played disc will appear on the display window.

3 **Press the SEL button to make the part you wish to edit flashing. Select the characters using the ⊖ or ⊕ button.**



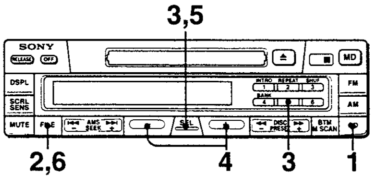
If you wish to change the titles of other discs, repeat steps 1 to 3 on the discs after changing them with the DISC or CD button.

4 **Press the FILE button for more than two seconds.**

Now the new title is registered.

Note
If you wish to change the PLAY/SKIP settings of the Bank function, press the FILE button lightly to enter the PLAY/SKIP mode while the unit is in the name edit mode in step 2. While checking the disc and track numbers on the display window, change the setting by the AMS and SEL buttons. Press the FILE button lightly again and the unit will enter the name edit mode again.

Editing a Custom File



If you erase the title, the PLAY/SKIP settings of the Bank function will be erased as well.

Erasing a Title

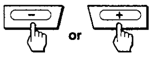
1 **Select the CD changer and play any disc.**

2 **Press the FILE button for more than two seconds to enter the name edit mode.**

The title of the currently played disc will appear on the display window.

3 **Press the preset number button 5 while pressing the SEL button.**

4 **Press the ⊖ or ⊕ button to search for the title you wish to erase.**



The titles stored in the CD changer currently selected will appear on the display window in the same order as they were registered*.

5 **Press the SEL button for more than two seconds after the title you wish to erase is displayed.**

Repeat steps 4 and 5 on other titles, if necessary.

6 **Press the FILE button for more than two seconds.**

Now the title and the PLAY/SKIP settings are erased. The unit goes back to the normal CD playing mode.

The alternative method to erase a title
You can erase a title by selecting eight "_"s (under-bars) as described in step 3 of "Changing the Title and the PLAY/SKIP Settings". (page 43)

*If you have erased some of the titles before, they will not come on in the same order as they were registered.

SECTION 2
DIAGRAMS

2-1. IC PORT FUNCTION DESCRIPTION
MD SERVO BOARD IC514 ~~(μPD78138GF)~~ μPD78136GF-030-3B9

Pin No.	Port No.	Port Name	I/O	Description
1	P34	KYENB	O	TEST KEY (No. 42 to 49 buttons) enable or not designation out. High: ENABLE, Low: INHIBIT
2		SI	I	DATA of the communication between MASTER μ-COM and MECHA μ-COM in.
3		SO	O	DATA of the communication between MASTER μ-COM and MECHA μ-COM out.
4		SCK	I	CLOCK of the communication between MASTER μ-COM and MECHA μ-COM in.
5	NMI	WP	I	Control port for ACTIVE/SLEEP of MECHA μ-COM. High: ACTIVE, Low: SLEEP
6	INT0	DQSY	I	(Not used) Open.
7	INT1	SQSY	I	SUBQ SYNC interruption. Interrupted at ‾↓_.
8	INT2	ATSY	I	ADIP SYNC interruption. Interrupted at ‾↓_.
9		DEFECT		(Not used) Open.
10		DEFECT		(Not used) Open.
11	P26	CS	I	MASTER μ-COM transfer request on the communication between MASTER μ-COM and MECHA μ-COM. Request at ‾↓_.
12	P27	CS	I	The same as pin ⑪.
13	P30	5VPOWER	O	Servo IC power control. High: POWER ON, Low: POWER OFF
14	P31	SRQ	O	MECHA μ-COM transfer request on the communication between MASTER μ-COM and MECHA μ-COM. Request at ‾↓_.
15	P32	LOAD	O	LOADING/EJECT Output for motor 1 0 0 1 LOAD EJECT STOP BRAKE
16	P33	EJECT	O	LOADING/EJECT Output for motor 0 1 0 1
17	PWM0	LDON	O	Laser on/off output High: LASER OFF, Low: LASER ON
18	PWM1	LDPOWER	O	Laser power control Low: On low reflecting rate disc (MO), High: On high reflecting rate disc (CD).
19	AVSS			Ground for A/D convertor input. (0 V)
20	AVREF			Reference voltage input for A/D convertor. (5 V)
21	AN0	SW1	AD1	Loading start switch, eject end switch. Loading starts on _↑‾, Eject is end on ‾↓_.
22	AN1	SW2	ADI	Loading end switch Loading is end on ‾↓_.
23	AN2	SW3	ADI	(Not used) Open.
24	AN3	SW4	ADI	Disc reflecting rate detection switch. Detects from holes on the cartridge. Low: On high reflecting rate disc (CD), High: On low reflecting rate disc (MO).
25	AN4	TEMP	ADI	Detects the mechanism deck is high temperature or not. High: NORMAL, Low: HIGH TEMP
26	AN5			(Not used) Open.
27	AN6			(Not used) Open.
28	AN7			(Not used) Open.
29	RESET			Reset for μ-COM
30	VDD			Power for μ-COM
31	X2			For the system clock
32	X1			For the system clock
33	Vss			Ground for μ-COM
34	P00	RFSW1	O	DISC MODE High: On pit, Low: On groove

Pin No.	Port No.	Port Name	I/O	Description
35	P01	RFSW0	O	DISC MODE High: On CD, Low: On MO
36	P02	ASYSW	O	On playing back CD disc pit: Fixed to high. On playing back MO disc groove: High=Normal, Low=On track jump operation.
37	P03	AGCSW	O	High: Focusing starts, Low: Focusing is end.
38	P04	MIRRSW	O	On playing back CD disc pit: Fixed to low. On playing back MO disc groove: High=Normal, Low=On track jump operation and on the time from CLV, tracking, sled servo go on to starting is OK.
39	P05	DFCTSW	O	High: Focusing starts. Low: All servo (Focus, CLV, Tracking, sled) is on.
40	P06	SLO MUTE	O	MOTOR DRIVER POWER CONTROL "H": ON, "L": OFF
41	P07	IFRES		(Not used) Open.
42	P60	KI0	I	KEY SCAN input 0
43	P61	KI1	I	KEY SCAN input 1
44	P62	KI2	I	KEY SCAN input 2
45	P63	KI3	I	KEY SCAN input 3
46	P64	KO0	O	KEY SCAN output 0
47	P65	KO1	O	KEY SCAN output 1
48	P66	KO2	O	KEY SCAN output 2
49	P67	KO3	O	KEY SCAN output 3
50	P57	FOK	I	FOCUS OK High: FOCUS OK, Low: FOCUS NG
51	P56	ATT	O	CXD2527 ATTENUATION (− 12dB) High: ON, Low: OFF
52	P55	AEXEC	O	CXD2527 START High: START, Low: STOP
53	P54	CD/MO	I	Connected to CXA1381. CD/MO discrimination
54	P53	SENS	I	SENSE input from CXA1082 and CXD2525.
55	P52	LOCK	I	LOCK input from CXD2525. "H": CLV LOCK, "L": CLV UNLOCK
56	P51	GFS	I	GFS (Constant linear velocity) OK High: GFS OK, Low: GFS NG
57	P50	XINT	I	CXD2526 interruption. Detects low level.
58	P47	MD2		Connected to MD2 terminal of CXD2525.
59	P46	DIRC	O	High: Detects TRACK JUMP TZC, Low: 1 TRACK JUMP end
60	P45	XRST	O	Reset the servo IC on .
61	P44	SORS	O	Reset ENSCOR
62	P43	SBMN		Connected to CXD2526 SBMN. "H": SUB DATA CONTROL, "L": MAIN DATA CONTROL
63	P42	WRMN	O	High: DRAM WRITE START, Low: DRAM WRITE STOP
64	P41	RCPB	O	REC/PB selection High: REC, Low: PB
65	P40	SCTX	O	CD-DA MODE SCOR input
66				(Not used) Open.
67	Vss			Ground for μ-COM
68	EA			5 V
69	P10	SCK	I	Clock for serial communication to servo IC.

	KI0	KI1	KI2	KI3
KO0	EJECT	STOP	PLAY	PAUSE
KO1	REV	CUE	AMS −	AMS+
KO2	MODE			LASER
KO3	FOCUS	TRACK	SLED −	SLED+

On pin ① is low ⌈Pins ㊽, ㊼, ㊻ ⇨ DRAM remains.⌋
000=0M, 001=~0.5M, 010=~1.0M,
011=~1.5M, 100=~2.0M, 101=~2.5M,
110=~3.0M, 111=3.0M~

Pin No.	Port No.	Port Name	I/O	Desription
70	P11	ARST	O	Reset output to CXD2527. Reset on ‾|_↑‾
71	P12	SWDT	O	Write data for serial communication to servo IC.
72	P13	SRDT	O	Read data for serial communication to servo IC.
73	P14	XLAT	O	Latch for serial communication to servo IC.
74	P15	MDT	O	For digital filter (Not used). Open.
75	P16	MCK	O	For digital filter (Not used). Open.
76	P17	MLEN	O	For digital filter (Not used). Open.
77	VDD			Power for μ-COM
78	P70	8VPOWER		8 V system power supply. High: ON, Low: OFF
79	P71	MUTE		High: MUTE ON, Low: MUTE OFF
80				(Not used) Open.

MAIN BOARD IC504 (μPD75518GF) -090-3B9

<table>
<tr><th>Pin No.</th><th>Port No.</th><th>Port Name</th><th>I/O</th><th>Key Contens</th></tr>
<tr><td>1</td><td>AN0</td><td>KEY-IN0</td><td>ADI</td><td>Key input by A/D conversion no.0
<table>
<tr><th>VALUE (DENOMINATOR OFFH)</th><th>KEY CONTENTS</th></tr>
<tr><td>00H – 08H</td><td>FM(J)</td></tr>
<tr><td>09H – 1BH</td><td>AM(J)</td></tr>
<tr><td>1CH – 2AH</td><td>EJECT</td></tr>
<tr><td>2BH – 3AH</td><td>LEVEL+</td></tr>
<tr><td>3BH – 48H</td><td>SELECT</td></tr>
<tr><td>49H – 58H</td><td>SEEK+, AMS+</td></tr>
<tr><td>59H – 67H</td><td>SEEK –, AMS –</td></tr>
<tr><td>68H – 78H</td><td>PRESET+, DISC+</td></tr>
<tr><td>79H – 88H</td><td>PRESET –, DISC –</td></tr>
<tr><td>89H – 99H</td><td>MUTE</td></tr>
<tr><td>9AH – AAH</td><td>FILE</td></tr>
<tr><td>ABH – BAH</td><td>M.SCAN, BTM</td></tr>
<tr><td>BBH – CBH</td><td>SENS, SCROLL</td></tr>
<tr><td>CCH – DBH</td><td></td></tr>
<tr><td>DCH – EAH</td><td></td></tr>
<tr><td>EBH – F9H</td><td></td></tr>
</table></td></tr>
<tr><td>2</td><td>AVREF</td><td></td><td></td><td>Reference voltage input for A/D convertor input (5 V).</td></tr>
<tr><td>3</td><td>VDD</td><td></td><td></td><td>Power for μ-COM</td></tr>
<tr><td>4</td><td>VDD</td><td></td><td></td><td>Power for μ-COM</td></tr>
<tr><td>5</td><td>P113</td><td>KEY-ACTIVE</td><td>O</td><td>Power on/off switch for A/D buttons.
High: POWER ON, Low: POWER OFF</td></tr>
<tr><td>6</td><td>P112</td><td>P-ON</td><td>O</td><td>LED on/off switch for general keys on nose.
High: LED on, Low: LED off.</td></tr>
<tr><td>7</td><td>P111</td><td>ILL-ON</td><td>O</td><td>LED on/off switch for source keys on nose.
High: LED on, Low: LED off.</td></tr>
<tr><td>8</td><td>P110</td><td>COLOR</td><td>O</td><td>LED color select
High: GREEN, Low: AMBER</td></tr>
<tr><td>9</td><td>P103</td><td>MUTE</td><td>O</td><td>Head unit internal mute
High: On source selection or during stop, Low: During playback.</td></tr>
<tr><td>10</td><td>P102</td><td>AUX-MUTE</td><td>O</td><td>UNI-LINK slave unit mute
High: During internal slave playback or stop.
Low: During playback.</td></tr>
<tr><td>11</td><td>P101</td><td></td><td>O</td><td>(Not used) Open.</td></tr>
<tr><td>12</td><td>P100</td><td></td><td>O</td><td>(Not used) Open.</td></tr>
<tr><td>13</td><td>P93</td><td>ANT. REM</td><td>O</td><td>Output for power antenna. It is high in tuner and TV modes.
High: FM, AM, MW, LW, TV modes, Low: Other modes.</td></tr>
<tr><td>14</td><td>P92</td><td>MD-P-ON</td><td>O</td><td>MD board power on (Not used).
High: During MD playback or MD eject, Low: Other operation.</td></tr>
<tr><td>15</td><td>P91</td><td>MD2-ON</td><td>O</td><td>Wake up/sleep control for MECHA μ-COM.
High: MECHA μ-COM ACTIVE, Low: MECHA μ-COM SLEEP</td></tr>
<tr><td>16</td><td>P90</td><td>$\overline{\text{MD-RESET}}$</td><td>O</td><td>Reset for MECHA μ-COM.
Reset MECHA μ-COM at ‾|_|‾</td></tr>
<tr><td>17</td><td>SI1</td><td>MD-DATA. IN</td><td>I</td><td>DATA of the communication between MASTER μ-COM and MECHA μ-COM in.</td></tr>
<tr><td>18</td><td>SO1</td><td>MD-DATA. OUT</td><td>O</td><td>DATA of the communication between MASTER μ-COM and MECHA μ-COM out.</td></tr>
<tr><td>19</td><td>$\overline{\text{SCKI}}$</td><td>$\overline{\text{MD-CLK}}$</td><td>O</td><td>CLOCK of the communication between MASTER μ-COM and MECHA μ-COM out.</td></tr>
<tr><td>20</td><td>PPO</td><td>$\overline{\text{MD-CS}}$</td><td>O</td><td>MASTER μ-COM transfer request on the communication between MASTER μ-COM and MECHA μ-COM. Request at ‾|_ .</td></tr>
<tr><td>21</td><td>P73</td><td>VOL-CE</td><td>O</td><td>Chip enable to E-volume (LC7537)</td></tr>
<tr><td>22</td><td>P72</td><td></td><td>O</td><td>(Not used) Open.</td></tr>
<tr><td>23</td><td>P71</td><td>VOL-CLK</td><td>O</td><td>Clock to E-volume</td></tr>
<tr><td>24</td><td>P70</td><td>VOL-DATA</td><td>O</td><td>Data to E-volume</td></tr>
</table>

Pin No.	Port No.	Port Name	I/O	Description
25	P63	8901-CE	O	Chip enable to digital audio receiver
26	P62	DIGITALRESET	O	Reset to digital audio receiver and DAC
27	P61	8901-CLK	O	Clock to digital audio receiver
28	P60	8901-DATA	O	Data to digital audio receiver
29	P53	DIGITAL MUTE-IN	I	Connected to ERROR terminal of LC8901. Raise up high MUTE terminal by level high input.
30	P52		I	(Not used) GND
31	P51		I	(Not used) GND
32	P50		I	(Not used) GND
33	Vss			Ground for μ-COM
34	P43	HAS LOUDNESS/ NOT HAVE LOUDNESS	I	Loudness function having or not select input. High: Has loudness. Low: Not have loudness.
35	P42		I	(Not used) GND
36	P41		I	(Not used) GND
37	P40		I	(Not used) GND
38	P33		O	(Not used) Open.
39	P32		O	(Not used) Open.
40	P31	DISK-IN. LED GFS (TEST)	O	Indicates there is MD cartridge in the mechanism deck or not. High: There is a cartridge. Low: There is not.
41	P30	SYNC	O	Sync signal for UNI-LINK
42	P23	$\overline{\text{SYSTEM-RESET}}$	O	Sync reset for UNI-LINK
43	P22	$\overline{\text{BUS ON}}$	O	Controls UNI-LINK bus activation High: BUS SLEEP, Low: BUS ACTIVE
44	P21	CLK OUT	O	Clock out for UNI-LINK
45	P20	BEEP	O	Beep out. When requesting beep out, rectangular wave is out.
46	P13	$\overline{\text{ACC-CHECK}}$	I	ACC SW in High: ACC OFF, Low: ACC ON
47	P12	KEY-ACK	I	Rises low to high by pushing KEY IN 0 or KEY IN 1 when KEY-ACTIVE is low. Usually high level is out when KEY-ACTIVE is high.
48	P11	C-SW	I	Mechanism deck cartridge in switch High: There is a cartridge, Low: There is not.
49	P10	SIRCS-IN	I	SIRCS input from remote controller
50	SI0	DATA IN	I	Data input from UNI-LINK
51	SO0	DATA OUT	O	Data output to UNI-LINK
52	SCK0	CLK IN	I	Clock output to UNI-LINK. Input from pin ㊹.
53	P00	B/U-CHECK	I	For back-up check High: BACK UP ON, Low: BACK UP OFF
54	Vss			Ground for μ-COM
55	XT1			SUB SYSTEM CLOCK
56	XT2			SUB SYSTEM CLOCK
57	IC			Connected to internally connected Vss.
58	X1			MAIN SYSTEM CLOCK
59	X2			MAIN SYSTEM CLOCK
60	$\overline{\text{RESET}}$			Reset for μ-COM

Pin No.	Port No.	Port Name	I/O	Description
61	P143		O	(Not used) Open.
62	P142	LCD-CE	O	Chip enable to LCD driver
63	P141	LCD-CLK	O	Clock to LCD driver
64	P140	LCD-DATA	O	Data to LCD driver
65	P133		O	(Not used) Open.
66	P132	$\overline{\text{TEL-MUTE}}$	I	Telephone mute input. Attenuate audio output − 20 dB by putting low level in.
67	P131	$\overline{\text{MD-SRQ}}$	I	MECHA μ-COM transfer request on the communication between MASTER μ-COM and MECHA μ-COM. Request at ‾↓_.
68	P130	N-SW	I	Input there is nose or not. High: There is a nose, Low: There is not.
69	P123		O	(Not used) Open.
70	P122	SEL-A/D	O	ANALOG AUDIO/DIGITAL AUDIO SOURCE select High: DIGITAL, Low: ANALOG
71	P121	SEL-1	O	AUDIO SOURCE select 1 0 1 0 1 TUNER AUX MD SLAVE (CD)
72	P120	SEL-0	O	AUDIO SOURCE select 0 0 0 0 1
73	AVSS			Ground for A/D converter input
74	AN7		ADI	(Not used) GND
75	AN6	P-SEL. SW	ADI	Power select switch input High: POWER SEL ON, Low: POWER SEL OFF
76	AN5		ADI	(Not used) GND
77	AN4	DEST-SEL	ADI	The second and third source keys on right side of nose allocation input. J, U/CA, E − 0V FM, AM AE/AE6 − 5V FM/MW/LW, AF/TA
78	AN3		ADI	(Not used) GND
79	AN2		ADI	(Not used) GND
80	AN1	KEY-IN1	ADI	Key input by A/D conversion no. 1

VALUE (DENOMINATOR OFFH)	KEY CONTENTS
00H − 08H	CD
09H − 1BH	MD
1CH − 2AH	OFF
2BH − 3AH	LEVEL −
3BH − 48H	DSPL
49H − 58H	1 INTRO
59H − 67H	2 REPERT
68H − 78H	3 SHUFFLE
79H − 88H	4 BANK
89H − 99H	5
9AH − AAH	6
ABH − BAH	
BBH − CBH	
CCH − DBH	
DCH − EAH	
EBH − F9H	

MAIN BOARD IC601 (μPD75116GF-G00-3BE)

Pin No.	Name	I/O	Description
1	–	–	Not used.
2	–	–	
3	–	–	(Connected to ground).
4	–	–	
5	–	–	
6	–	–	
7	RESET	–	Reset input
8	X2	–	Connected to ceramic oscillator (4.19 MHz).
9	X1	–	
10	PLL-DI	I	Data input for PLL IC
11	PLL-DO	O	Data output for PLL IC
12	PLL-CLK	O	Clock output for PLL IC
13	PLL-CE	O	Chip enable output for PLL IC
14	MS7	I	Mode select input
15	MS6	I	
16	MS5	I	
17	MS4	I	
18	MS3	I	
19	MS2	I	
20	MS1	I	
21	MS0	I	
22	RDS-D1	I	Not used.
23	$\overline{\text{RDS-D-Start}}$	I	Not used.
24	$\overline{\text{RDS-ERR}}$	I	Not used.
25	$\overline{\text{RDS-Receive}}$	I	Not used.
26	Vss	–	GND
27	–	–	(Connected to ground).
28	–	–	(Connected to ground).
29	RDS – CLK	I	Not used.
30	BUS-ON	I	Bus on input Recognizes interruption request flag (IREQ 0) when bus on/off detection interrupting and on μ-COM operation mode. When μ-COM is stop, this interruption is used for releasing stop mode. when the stop command effects, set interrupting enable, interruption request flag, and INTO edge detection mode register (IMO).
31	–	–	Not used. (Connected to Vss or VDD).
32	ST IN	I	STEREO input Low: Stereo. Goes low during putting out force monaural. Usually transfers "0" to display data.
33	Vsm (FM)	I	FM S meter voltage detection. Used for A/D conversion function during BTM.
34	Vsm (AM)	I	AM S meter voltage detection.
35	–	–	Not used. (Connected to Vss or VDD).
36	–	–	

Pin No.	Name	I/O	Description
37	–	–	Not used.
38	$\overline{\text{RDS-RESET}}$	O	Not used.
39	Request	O	Bus request output. For communication request. High: Requests.
40	LINK-OFF	O	Bus link off output High: Link off. Goes low during bus on. When setting link state in CLOCK STOP mode, output level continues low. When BACKUP is off, sets input state.
41	DATA. IN	I	Bus data input. Serial data input.
42	DATA. OUT	O	Bus data output. Serial data output.
43	CLK. IN	I	Bus clock out Serial clock input for bus communication. Clock goes out from IC504 during transferring on receiving clock sync. 8 bits.
44	B UP	I	BUCKUP detect input. Used for BACKUP detect or interruption. On μ-COM operation, recognizes BACKUP change by detecting rising edge and falling edge of interruption request flag (IRQ4). When the interruption doesn't effect, interruption enable flag (IE4) is inhibited. When μ-COM is stop, this interruption is used for releasing STOP mode.
45	–	–	Not used.
46	–	–	
47	–	–	
48	$\overline{\text{MONO}}$	O	Force monaural output Selects stereo mode high level output or force monaural mode low level. When setting to AM band, MS4 (Mode select pin) "1" is only effective. During TA interrupting on alarming, force monaural mode low level goes out in spite of mode setting.
49	–	–	Not used.
50	–	–	
51	$\overline{\text{FM-FE-ON}}$	O	FM power supply control output. Low: FM
52	$\overline{\text{AE-FE-ON}}$	O	AM power supply control output. Low: AM
53	MUTE	O	Mute output
54	–	–	Not used.
55	–	–	
56	–	–	
57	VDD	–	Power supply
58	VDD	–	
59	SD	I/O	SD input Set the stop level of seek, auto-memory, and scan. Low: AM receiving (Mute off).
60	–	–	Not used.
61	ROM CLK	O	EEPROM clock output
62	ROM DATA	I/O	EEPROM data input/output
63	–	–	Not used.
64	–	–	

MAIN BOARD IC901 (LC8901)

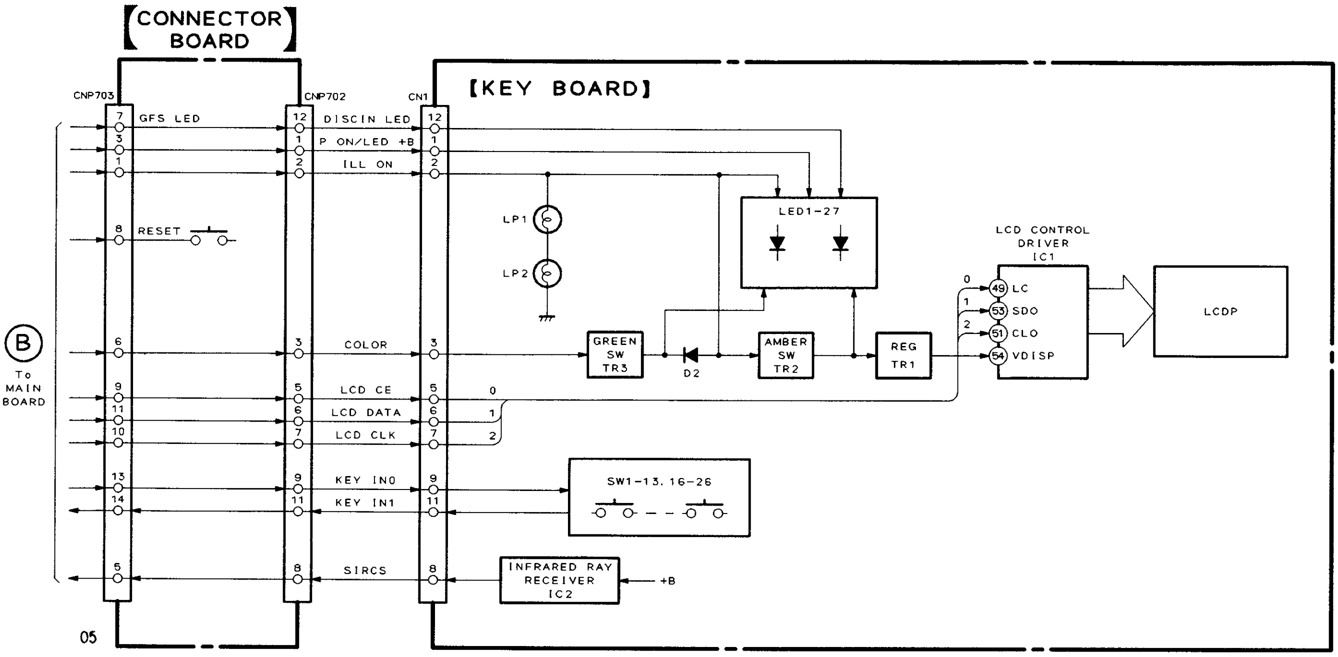
Pin No.	Name	I/O	Description
1	DIN5	I	Data input
2	DIN6	I	Data input
3	DOUT1	O	Input EIAJ data through output
4	DOUT2	O	Input EIAJ data through output
5	RC1	I	For RC oscillator making clock for misclock detection of PLL.
6	RC2	O	
7	LPF	I	High: LPF time constant change, Low: Fixed.
8	STOP	I	High: Stops VCO, Low: Normally.
9	TEST1	I	For test (normally low)
10	TEST2	I	For test (normally low)
11	DVDD		Digital power supply
12	AVDD		Analogue power supply
13	R	I	For adjusting VCO oscillating band width
14	AGND		Analogue ground
15	VIN	I	For adjusting VCO self-oscillating
16	VCO	O	For PLL LPF
17	DGND		Digital ground
18	CLK	I	Clock mode select High: 512 Fs, Low: 384 Fs
19	XSYS	I	Crystal mode set. High: Crystal mode.
20	XIN1	I	Crystal oscillator. When PLL sync. demodulating, stops oscillating.
21	XIN2	O	
22	DVDD		Digital power supply
23	LOCK	O	High: PLL locks, Low: PLL unlocks.
24	ERROR	O	Error mute signal output
25	FS256	O	256 Fs clock output
26	CLKOUT	O	VCO oscillation or Crystal oscillation output.
27	EMPHA	O	High: There is emphasis, Low: There is not.
28	DGND		Digital ground
29	BCLK	O	Bit clock output
30	DATAOUT	O	Audio data output
31	LRCK	O	L/R clock output
32	SUB1	O	Sampling frequency output
33	SUB2	O	Sampling frequency output
34	DO	O	μ-COM interface output
35	DI	I	μ-COM interface input
36	CE	I	μ-COM interface chip enable input
37	CL	I	μ-COM interface clock input
38	XMODE	I	Starts PLL operation after power on
39	DVDD		Digital power supply
40	DIN1	I	Amplifier built-in data input

Pin No.	Name	I/O	Description
41	DIN2	I	Amplifier built-in data input
42	DIN3	I	Amplifier built-in data input
43	DIN4	I	Amplifier built-in data input
44	DGNC		Digital ground

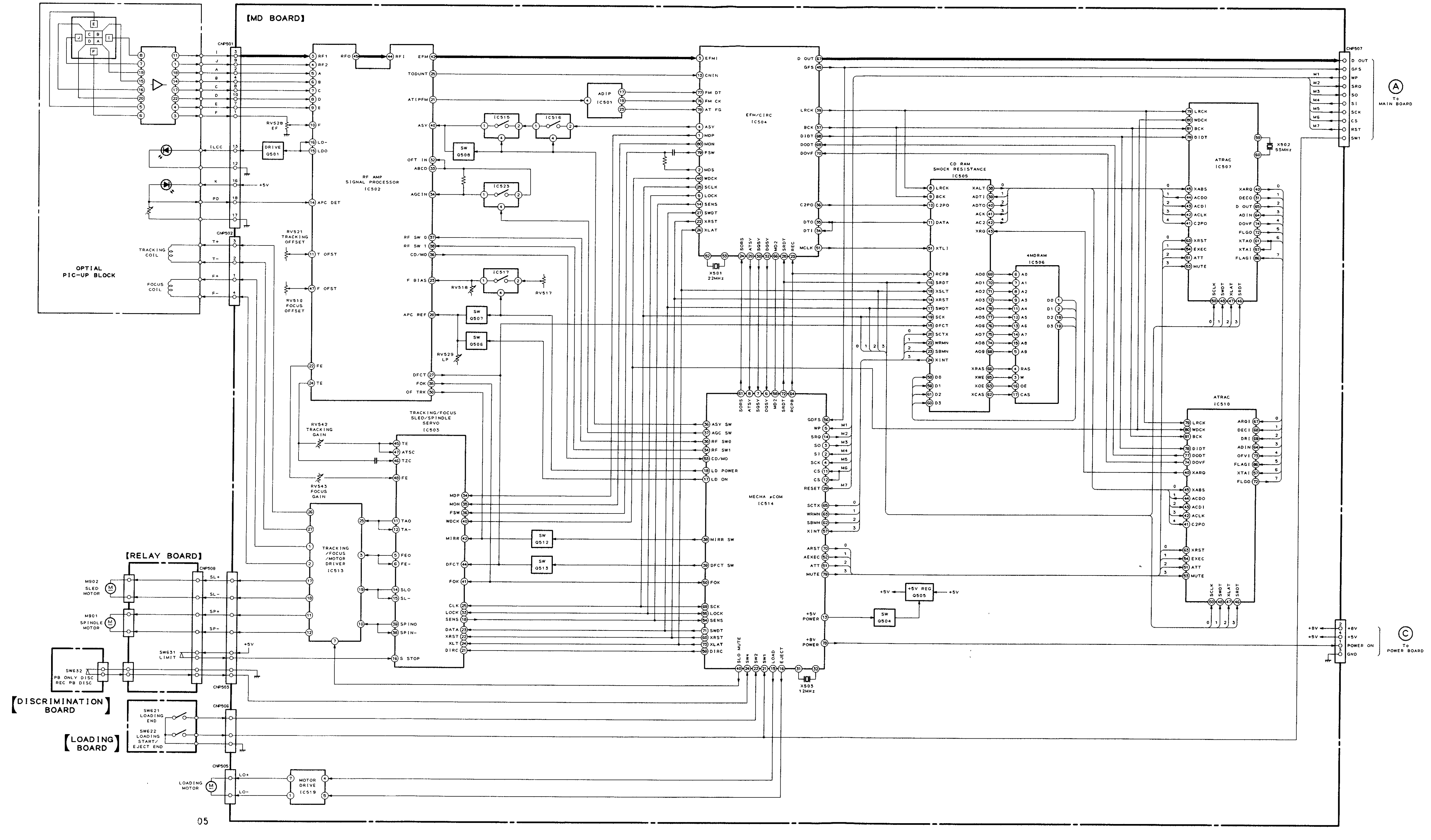
MAIN BOARD IC902 (AK4328)

Pin No.	Name	I/O	Description
1	AGND1	–	Analogue ground
2	AOUTL	O	Lch analogue out, when putting in full scale, output is typ ± 2 Vp-p.
3	VA+	–	Positive power supply, +5 V for analogue
4	AGND2	–	Analogue ground
5	VA –	–	Negative power supply, – 5 V for analogue
6	CMPO	O	Comparator output. Used for offset calibration. Connected to CMPI pin.
7	NC	–	Not connected. Open.
8	CMPI	I	Comparator input. Used for offset calibration. Connected to CMPO pin.
9	$\overline{\text{RST}}$	I	Reset/Calibration When making this low, filter and modulator are reset. After this, making high, offset calibration starts. 1024L/R clock is used for offset calibration, while this time, analogue output is connected to analogue ground internally.
10	TST	I	Test (Pull-down pin) Open or connect it to digital ground.
11	CKS	I	Clock select. Selects clock frequency feeding to XTI pin. "L": CLK=256 fs (12.288 MHz @fs=48 kHz) "H": CLK=284 fs (18.432 MHz @fs=48 kHz)
12	DIF1	I	Dital input format (Pull-down pin) Can select four kinds of input format.
13	DIF0		
14	XTI	I	Clock input Connect crystal oscillator between XTO pin and this pin or feed external CMOS clock into XTI pin. Clock frequency is selected by CKS pin.
15	XTO	O	Crystal oscillator output When using crystal oscillator, connect it to XTI pin. When using external clock, open this pin.
16	VD+	–	Positive power supply +5 V for digital
17	DGND	–	Dgital ground
18	SDATA	I	Serial data input Feed 16/18 bit serial data 2's complementally from MSB.
19	BICK	I	Serial bit clock Clock for latching serial data. Latching polarity is different in data input format.
20	LRCK	I	L/R clock Selects channels of feeding serial data.
21	CALO	O	Calibration output Used for offset calibration. Connected to CALI pin.
22	ACKO	O	Analogue clock output. 128fs clock out. Connected to ACKI pin.
23	NC	–	Not connected. Open.
24	ACKI	I	Analogue clock input Analogue section master clock input. Feed input word rate 128 times (128 fs) clock. Connected to ACKO pin.
25	AGND3	–	Analogue ground
26	AOUTR	O	Rch analogue out When putting in full scale, output is typ ± 2Vp-p.
27	CALI	I	Calibration input Used for offset calibration. Connected to CALO pin.
28	VREF –	O	Reference voltage output, – 3.68 V. Usually connect a 10 μF or more electrolytic capacitor and a 0.1 μF ceramic capacitor parallel to analogue ground.

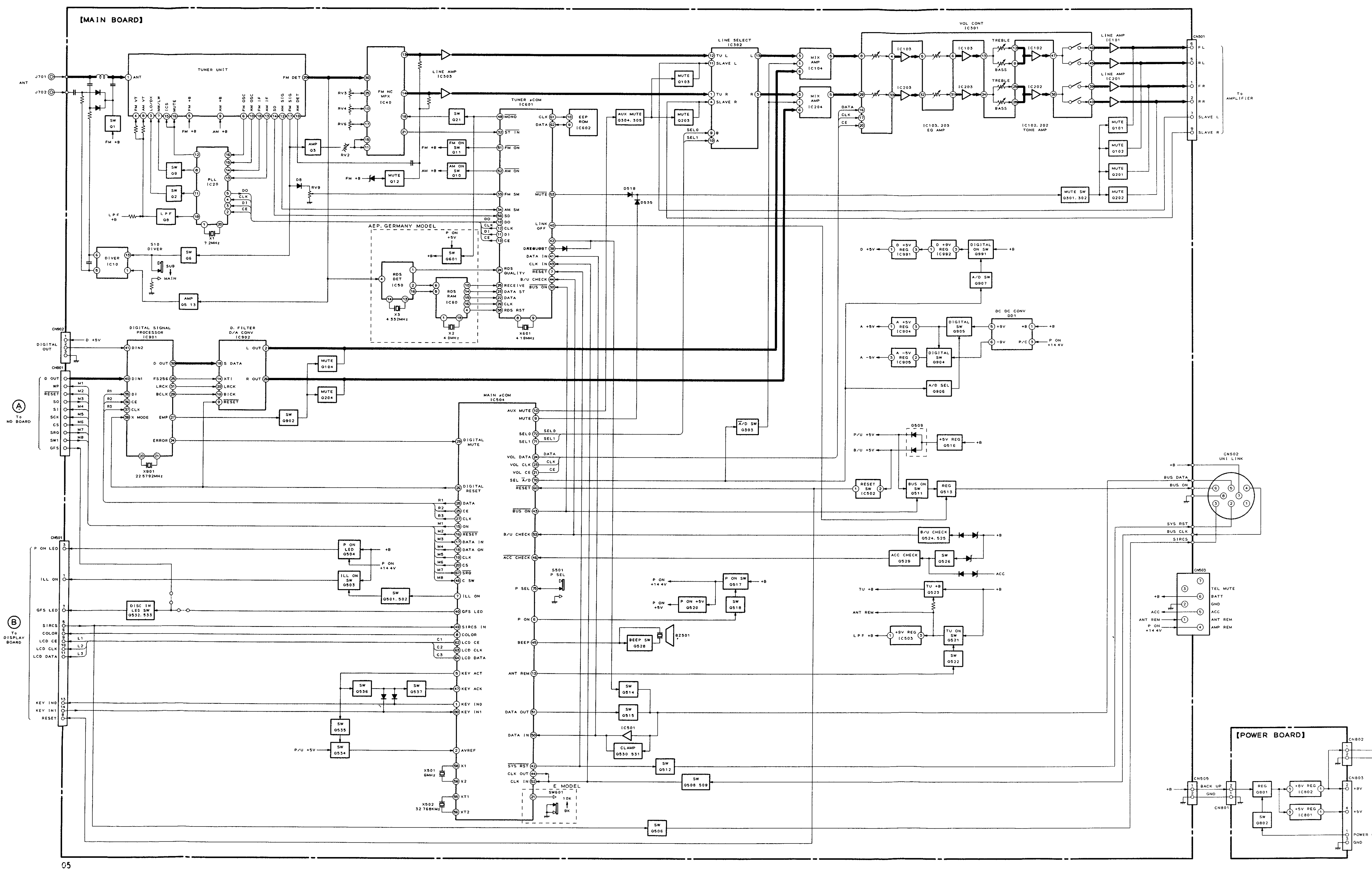
2-2. KEYBOARD BLOCK DIAGRAM


CONNECTOR BOARD
KEY BOARD
CNP703
CNP702
CN1
GFS LED
DISCIN LED
P ON/LED +B
ILL ON
RESET
COLOR
LCD CE
LCD DATA
LCD CLK
KEY IN0
KEY IN1
SIRCS
B
To MAIN BOARD
05
LP1
LP2
LED1-27
GREEN SW TR3
D2
AMBER SW TR2
REG TR1
LCD CONTROL DRIVER IC1
LC
SDO
CLO
VDISP
LCDP
SW1-13, 16-26
INFRARED RAY RECEIVER IC2
+B

2-3. MD SECTION BLOCK DIAGRAM

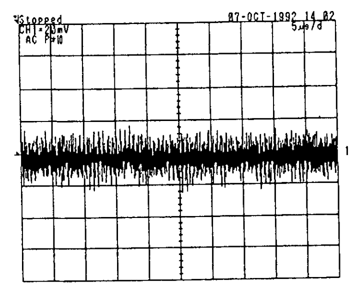

[MD BOARD]
OPTICAL PIC-UP BLOCK
[RELAY BOARD]
[DISCRIMINATION BOARD]
[LOADING BOARD]
RF AMP SIGNAL PROCESSOR IC502
EFM/CIRC IC504
CD-RAM SHOCK RESISTANCE IC506
ATRAC IC507
ATRAC IC510
MECHA µCOM IC515
TRACKING/FOCUS SLED/SPINDLE SERVO IC503
MOTOR DRIVE IC516
TO MAIN BOARD
TO POWER BOARD
D5

2-4. MAIN SECTION BLOCK DIAGRAM

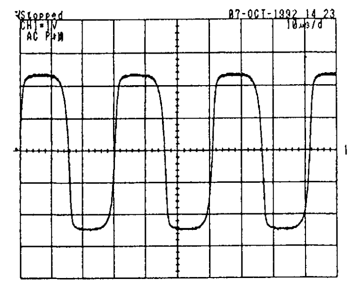

[MAIN BOARD]
TUNER UNIT
AEP, GERMANY MODEL
DIGITAL SIGNAL PROCESSOR IC901
D. FILTER IC902
MAIN µCOM IC601
TO MD BOARD
TO DISPLAY BOARD
[POWER BOARD]
FAN MOTOR
TO MD BOARD
TO AMPLIFIER
D5

- **Main Section Waveforms**

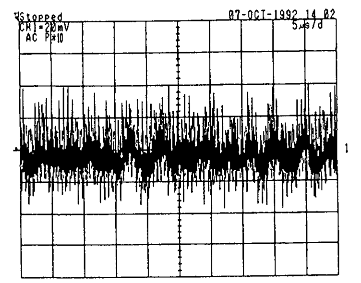
㉖ IC901 ⑳ 20mV/DIV 5 µs/DIV



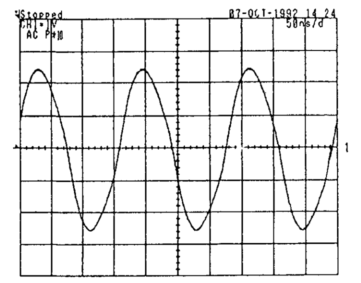
㉛ IC504 (56) 1V/DIV 10 µs/DIV



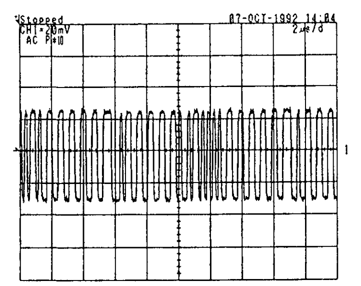
㉗ IC901 ㉑ 20mV/DIV 5 µs/DIV



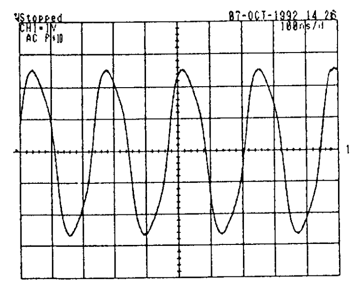
㉜ IC504 (59) 1V/DIV 50ns/DIV



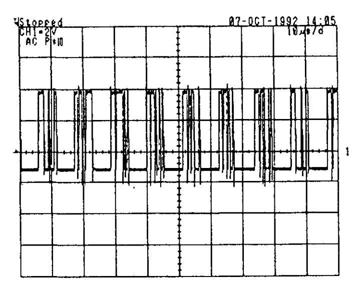
㉘ IC901 ㊵ 20mV/DIV 2 µs/DIV



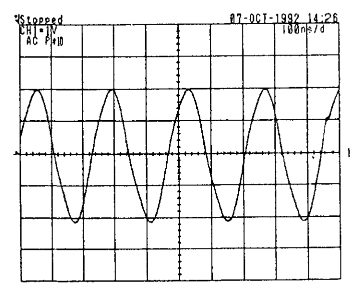
㉝ IC601 ⑧ 1V/DIV 100ns/DIV



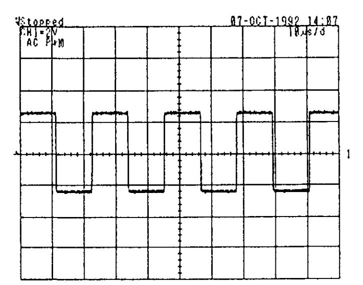
㉙ IC901 ㉙ 2V/DIV 10 µs/DIV



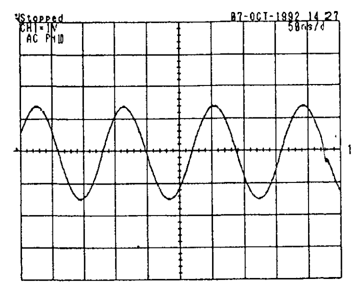
㉞ IC601 ⑨ 1V/DIV 100ns/DIV



㉚ IC902 ⑳ 2V/DIV 10 µs/DIV



㉟ IC20 ① 1V/DIV 50ns/DIV



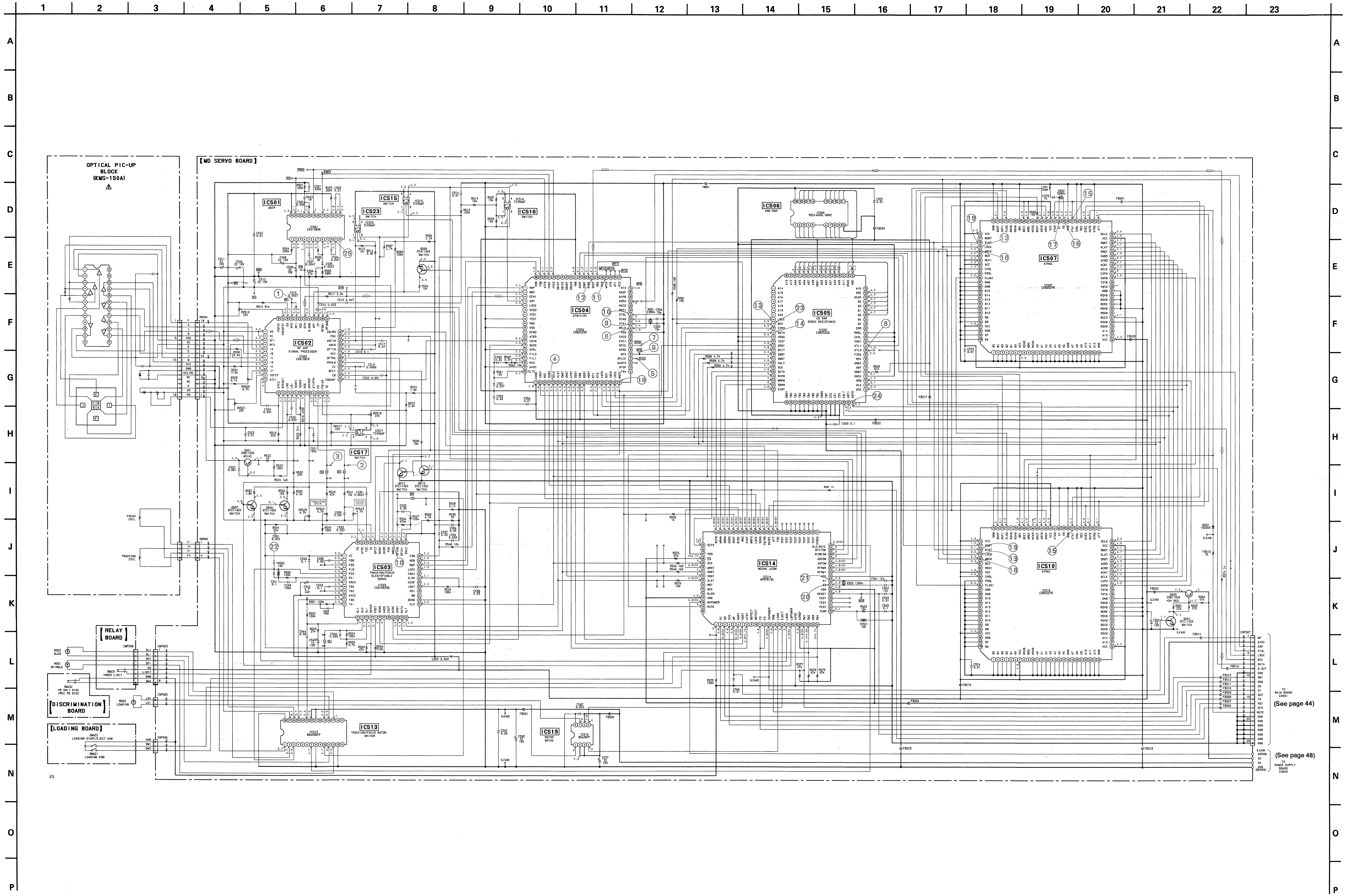
2-5. MD SERVO SECTION PRINTED WIRING BOARD

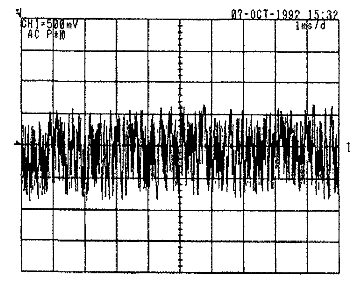
OPTICAL PIC-UP BLOCK
[LOADING BOARD]
[RELAY BOARD]
[DISCRIMINATION BOARD]
M901 SPINDLE MOTOR
M902 SLED MOTOR
M903 LOADING MOTOR
FOCUS COIL
TRACKING COIL
[MD SERVO BOARD] (COMPONENT SIDE)
[MD SERVO BOARD] (CONDUCTOR SIDE)
TO MAIN BOARD CN901
(See page 50)
TO POWER BOARD CN803
(See page 52)

- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
Q501	G-26	IC504	I-31
Q504	D-27	IC505	F-29
Q505	C-27	IC506	G-14
Q506	G-25	IC507	F-31
Q507	G-25	IC510	D-31
Q508	H-25	IC513	F-20
Q512	I-27	IC514	I-28
Q513	I-27	IC515	H-24
		IC516	J-31
IC501	I-24	IC517	H-22
IC502	H-25	IC519	C-25
IC503	E-24	IC523	I-24

2-6. MD SERVO SECTION SCHEMATIC DIAGRAM • See page 55 for IC Block Diagrams.


OPTICAL PIC-UP BLOCK (KMS-150A)
[MD SERVO BOARD]
IC501 ADIP CXA1380N
IC502 RF AMP SIGNAL PROCESSOR CXA1381R
IC503 TRACKING/FOCUS SLED/SPINDLE SERVO CXA8039N
IC504 EFM/ACIRC CXD2527AR
IC505 D-RAM SHOCK RESISTANCE
IC506 ARE TIME
IC507 ATRAC CXD2527R
IC510 ATRAC CXD2527R
IC513 TRACKING/FOCUS MOTOR DRIVER
IC514 MECHA µCOM
IC515 SWITCH TC4S66F
IC516 SWITCH TC4S66F
IC517 SWITCH TC4S66F
IC519 MOTOR DRIVE
IC523 SWITCH TC4S66F
Q501 2SB1132Q DRIVE
Q504 DTC114EK SWITCH
Q505 2SB1132Q +5V REG.
Q508 DTA114EK SWITCH
Q512 DTC114EK SWITCH
Q513 DTC114EK SWITCH
CNP501
CNP507
FOCUS COIL
TRACKING COIL
[RELAY BOARD]
M502 SLED
M501 SPINDLE
SW531 INNER LIMIT
SW532 PB ONLY DISC /REC PB DISC
[DISCRIMINATION BOARD]
M503 LOADING
[LOADING BOARD]
SW621 LOADING START/EJECT END
SW622 LOADING END
WP
B+5V
EMP
XTAL
LRCK
BCK
DATA
D.OUT
GND
SW1
SRQ
SO
SI
SCK
CS
RST
GFS
MUTE
TO MAIN BOARD CN901
(See page 44)
(LEAD)
8VPOW
5V
8V
GND (SERVO)
TO POWER SUPPLY BOARD CN803
(See page 48)


㉕ IC501 ⑪ 0.5V/DIV 1ms/DIV

Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ▬▬ : B + Line.
- ▬ ▬ : B – Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from CN503 on Main Board.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : MD PB/Common
  ( ) : MD stop
  《 》: FM.
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ⇨ : MD

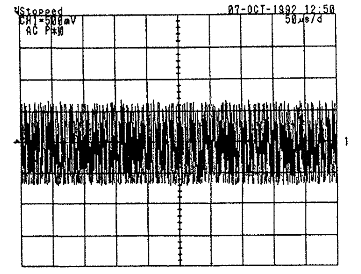
Note on Printed Wiring Board:

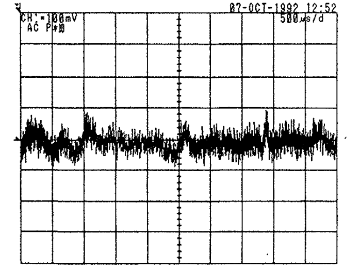
- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern of the rear side.
- ▨ : Pattern from the side which enables seeing.

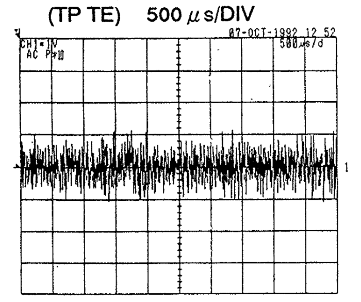
(The other layers' patterns are not indicated.)

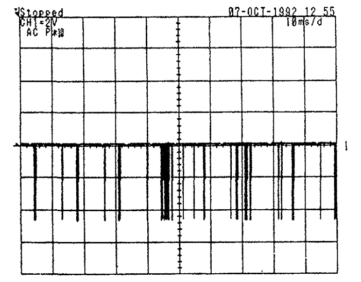
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

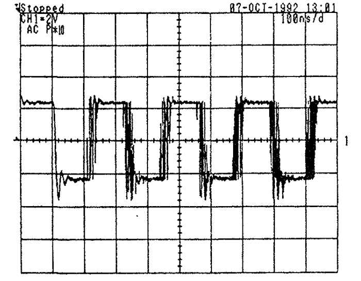
- MD Servo Board Waveforms

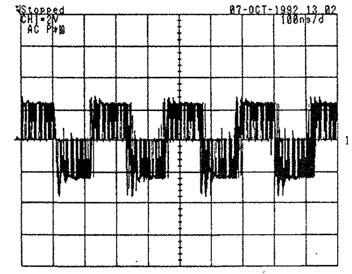

❶ IC502 ㊺ 0.5V/DIV
(TP RF) 50 µs/DIV

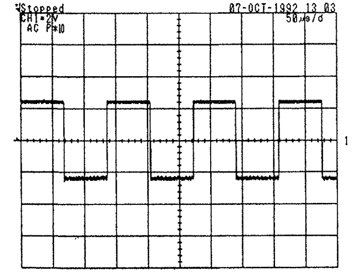

❷ IC502 ㉒ 0.1V/DIV
(TP FE) 500 µs/DIV

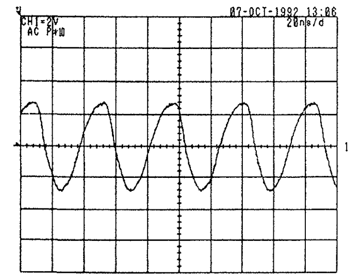

❸ IC502 ㉔ 1V/DIV
(TP TE) 500 µs/DIV

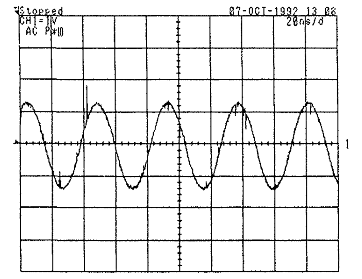

❹ IC504 ㉕ 2V/DIV 10ms/DIV

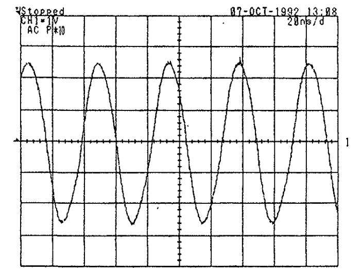

❺ IC504 ㊹ 2V/DIV
(TP PLCK) 100ns/DIV

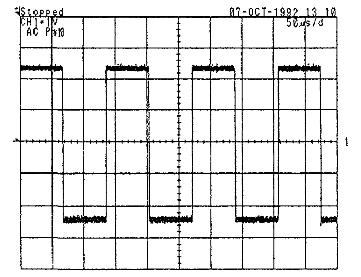

❻ IC504 ㊺ 2V/DIV
(TP GFS) 100ns/DIV

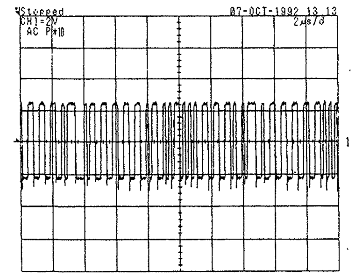

❼ IC504 ㊼ 2V/DIV
(TP RFCK) 50 µs/DIV

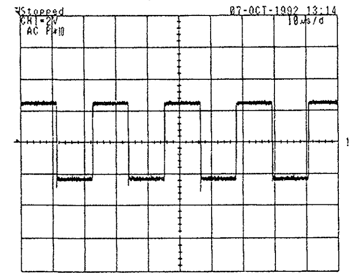

❽ IC504 (51) 2V/DIV 20ns/DIV

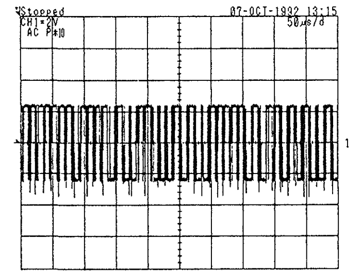

❾ IC504 (52) 1V/DIV 20ns/DIV

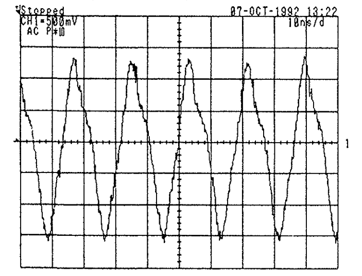

❿ IC504 (53) 1V/DIV 20ns/DIV

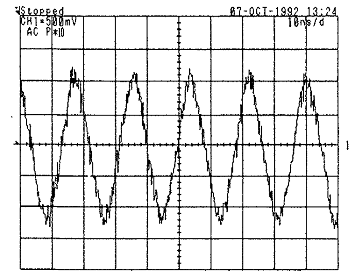

⓫ IC504 (64) 1V/DIV 50 µs/DIV

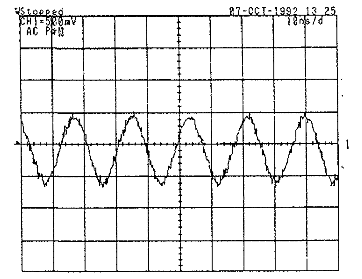

⓬ IC504 (67) 2V/DIV 2 µs/DIV

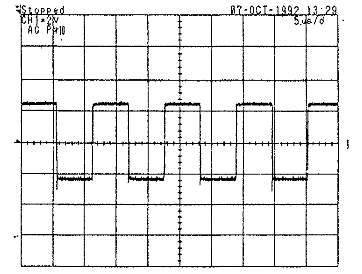

⓭ IC505 ⑧, IC507 (79) IC510 (79)
2V/DIV 10 µs/DIV

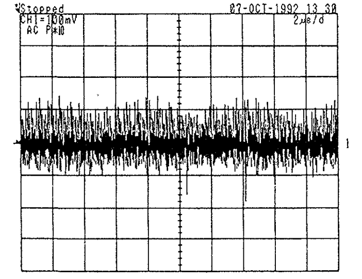

⓮ IC505 ⑪ 2V/DIV 50 µs/DIV

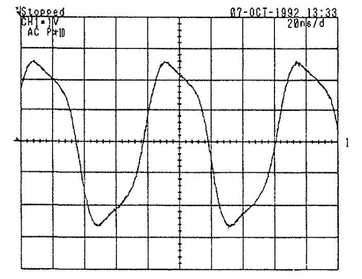

⓯ IC507 (57), IC510 (57)
0.5V/DIV 10ns/DIV

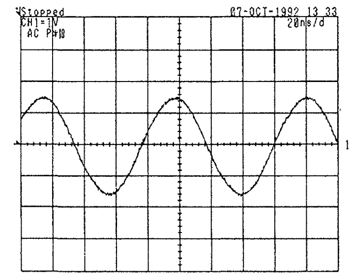

⓰ IC507 (59) 0.5V/DIV 10ns/DIV

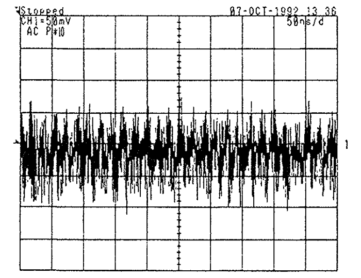

⓱ IC507 (60) 0.5V/DIV 10ns/DIV

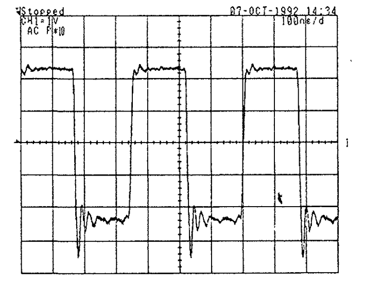

⓲ IC503 ㊵, IC507 (80) IC510 (80)
2V/DIV 5 µs/DIV

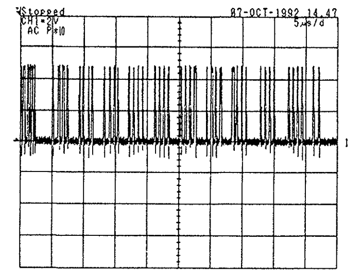

⓳ IC507 (78), IC510 (78)
0.1V/DIV 5 µs/DIV


⓴ IC514 ㉛ 1V/DIV 20ns/DIV


㉑ IC514 ㉜ 1V/DIV 20ns/DIV


㉒ IC503 ⑤ 50mV/DIV
50ns/DIV


㉓ IC505 ⑨ 1V/DIV 100ns/DIV


㉔ IC505 ㊵ 2V/DIV 5 µs/DIV

2-7. MAIN SECTION SCHEMATIC DIAGRAM • See page 33 for Waveforms and page 55 for IC Block Diagrams.

IC901 DIGITAL SIGNAL PROCESSOR
IC991 A.+5V REG.
IC992 A.+5V REG.
IC902 D.FILTER D/A CONVERTER
IC904 A.+5V REG.
IC905 A.-5V REG.
IC102 TONE AMP
IC101 LINE AMP
IC201 LINE AMP
IC103 EQ AMP
IC301 VOL CONTROL
IC203 EQ AMP
IC202 TONE AMP
IC302 LINE SELECT
IC104 MIX AMP
IC204 MIX AMP
IC303
IC10 DIVER
IC20 PLL
IC40
IC601 TUNER COMPUTER
IC602 EEP ROM
IC504 MAIN COMPUTER
IC501
IC502 RESET SWITCH
IC503 L.P.F. 5V REG.
IC801 5V REG.
IC802 5V REG.
IC50 RDS DET
IC60 RDS RAM
[CONNECTOR BOARD]
[POWER SUPPLY BOARD]
(See page 42)
TO MD BOARD
TO KEY BOARD UNIT
LINE OUT
FRONT
REAR
UNILINK
TEL.MUTE
BATT
GND
ACC
ANT.REM
AMP.REM
MDX-U1 US, CND, E Model
MDX-U1RDS AEP, G Model
05

*DESTINATION

	JR601	JR602	JR603	JR604	JR605	JR606	JR607	JR608	JR609	JR610	JR611	R603	R604	R605	R606	R607	SW601
MDX-U1 (US) (CND)	O	O	O	O	O	O	O	O	O	O	O	X	X	X	X	X	X
MDX-U1RDS (AEP)	X	X	X	X	O	X	X	X	X	X	X	O	O	O	O	X	X
MDX-U1RDS (G)	X	X	X	X	O	X	X	X	X	X	X	O	O	O	O	X	X
MDX-U1 (E)	X	O	O	X	O	O	O	O	O	O	O	O	X	X	O	X	O

	R531	D541	D542	C542	D602	Q601	R574	C55 C56	R50 R51	R70 R80	R99	R128 R228	IC602	TU10
MDX-U1 (US) (CND)	O	O	O	O	X	X	O	0.027	82K	62K	10K	1.2K	X24C041	1-693-045-11
MDX-U1RDS (AEP)	O	O	O	O	O	O	X	0.018	82K	56K	47K	820	X24C161	1-693-046-11
MDX-U1RDS (G)	O	O	O	O	O	O	X	0.018	100K	47K	47K	680	X24C161	1-693-046-11
MDX-U1 (E)	O	O	O	O	X	X	O	0.018	82K	56K	10K	820	X24C041	1-693-045-11

- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM/Common
  (   ) : MD stop
  《   》 : MD PB
  [   ] : AM

• See page 39 for other notes.

• Semiconductor Location

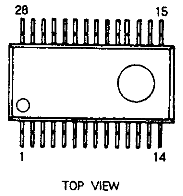
Ref. No.	Location	Ref. No.	Location
D1	E-26	IC601	I-8
D2	E-2	IC602	I-7
D4	I-28	IC901	E-11
D7	G-24	IC902	G-10
D8	H-1	IC904	D-18
D101	E-21	IC905	B-18
D201	H-20	IC991	D-18
D301	E-20	IC992	C-19
D302	H-22		
D501	D-13	Q1	F-3
D502	D-17	Q2	F-4
D503	B-17	Q3	I-1
D504	C-16	Q5	E-4
D505	G-13	Q6	G-28
D506	H-10	Q8	F-26
D507	H-11	Q9	G-26
D508	I-19	Q10	F-5
D509	I-13	Q11	F-4
D510	E-16	Q12	G-24
D511	C-17	Q13	E-4
D512	E-8	Q21	H-23
D513	C-17	Q101	D-24
D514	C-1	Q102	D-23
D515	E-12	Q103	G-23
D516	B-26	Q104	G-20
D517	C-27	Q201	D-22
D518	H-20	Q202	D-23
D519	K-16	Q203	F-23
D520	B-17	Q204	F-20
D521	C-16	Q301	E-9
D522	K-3	Q302	E-10
D523	K-20	Q303	J-18
D524	K-20	Q304	H-21
D255	J-20	Q305	H-21
D526	K-19	Q501	D-18
D527	K-19	Q502	D-18
D528	K-17	Q503	C-13
D529	K-18	Q504	C-12
D530	K-17	Q506	G-14
D531	K-17	Q508	H-19
D532	K-12	Q509	I-19
D533	J-12	Q511	H-10
D534	K-16	Q512	H-10
D535	G-17	Q513	F-13
D536	C-26	Q514	H-11
D537	C-26	Q515	H-11
D538	E-12	Q516	D-17
D539	K-11	Q517	D-8
D540	K-11	Q518	C-16
D551	K-20	Q520	E-9
D601	J-9	Q521	D-9
D602	F-4	Q522	D-16
D905	D-19	Q523	C-12
		Q524	E-17
IC10	E-3	Q525	F-17
IC20	G-3	Q526	B-25
IC40	H-4	Q528	I-15
IC101	E-6	Q529	C-25
IC102	G-22	Q530	I-10
IC103	F-23	Q531	I-10
IC104	G-9	Q532	J-10
IC201	E-7	Q533	J-9
IC202	G-22	Q534	J-12
IC203	F-21	Q535	J-12
IC204	F-9	Q536	K-12
IC301	F-7	Q537	K-13
IC302	H-7	Q904	B-19
IC303	H-21	Q905	D-20
IC501	H-10	Q906	D-20
IC502	K-16	Q907	E-17
IC503	E-19	Q991	D-9
IC504	I-11	Q992	F-20

2-8. MAIN SECTION PRINTED WIRING BOARDS

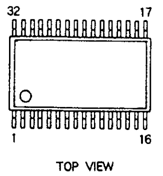
[MAIN BOARD] (COMPONENT SIDE)
[MAIN BOARD] (CONDUCTOR SIDE)
CN902 (DIGITAL OUT)
TO MD SERVO BOARD CNP501
(See page 38)
BZ501
S1 (NOISE)
(CHASSIS)
FRONT
REAR
LINE OUT PUT
UNILINK IN
BLK
YEL
CN505
BLU
ANT REM
GND
F1 3.15A
BATT
RED
F2 1A
ACC
AMP REM
MAIN (FM/AM)
SUB (FM)
(CHASSIS)
[POWER BOARD] (COMPONENT SIDE)
Q802
Q801
1-645-958-
[POWER BOARD] (CONDUCTOR SIDE)
FAN1
CN801
TO MD BOARD
(See page 38)
CN803
[CONNECTOR BOARD]
CNP701
CNP702
TO KEY BOARD UNIT
1-645-956-
1-645-957-

• Semiconductor Lead Layouts

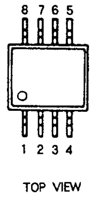
AK4328-VS



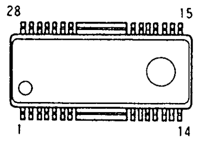
AN7464S



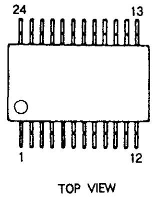
BA4558F
μPC393G2



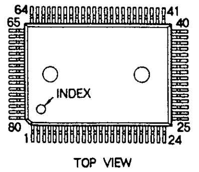
BA6298FP



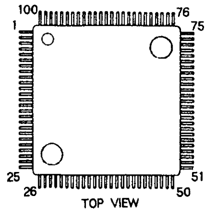
CXA1380N



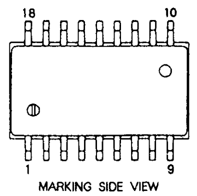
CXD2525R
CXD2526Q


INDEX
TOP VIEW

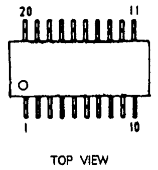
CXD2527R



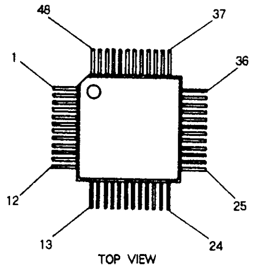
LC7071NM


MARKING SIDE VIEW

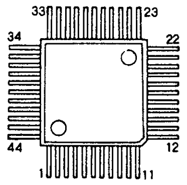
LC7216M



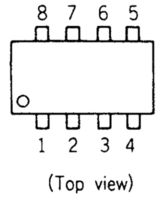
LC7537AN



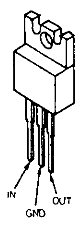
LC8901Q



M5203FP



RC7808FA
TA7805S



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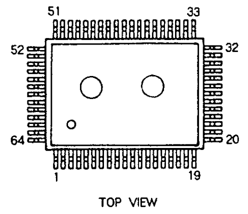
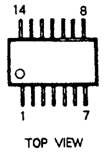
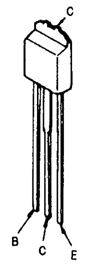


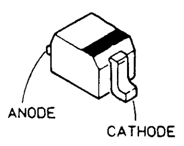
X24C04SI



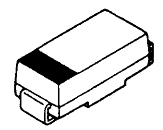
2SA1385-L



DTZ11A
DTZ16C
DTZ3.6B
DTZ4.7C
DTZ5.1C
DTZ5.6B
DTZ6.2B
DTZ7.5C
DTZ9.1B
1SS318
1SS355

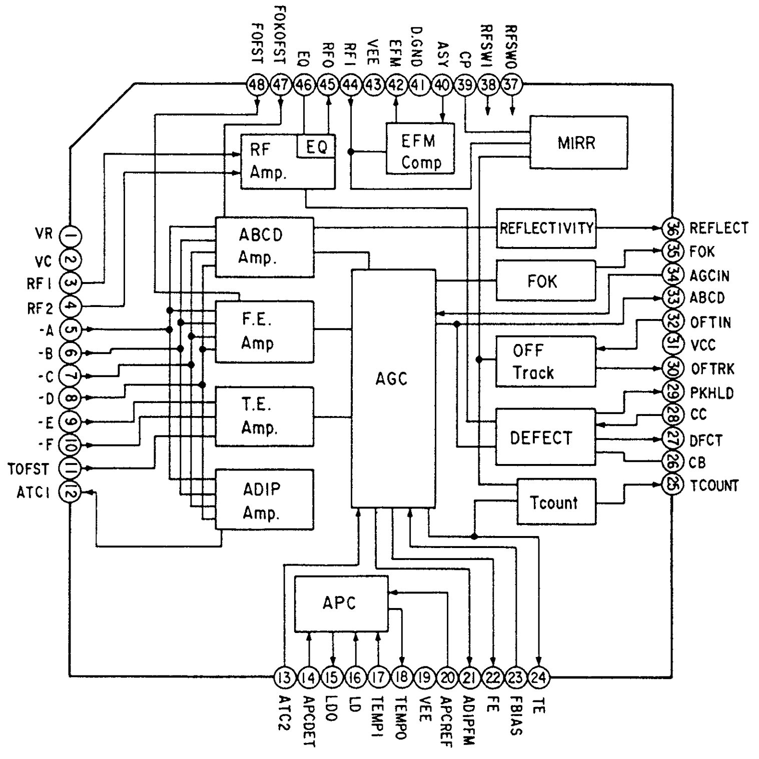

ANODE
CATHODE

EC10DS2

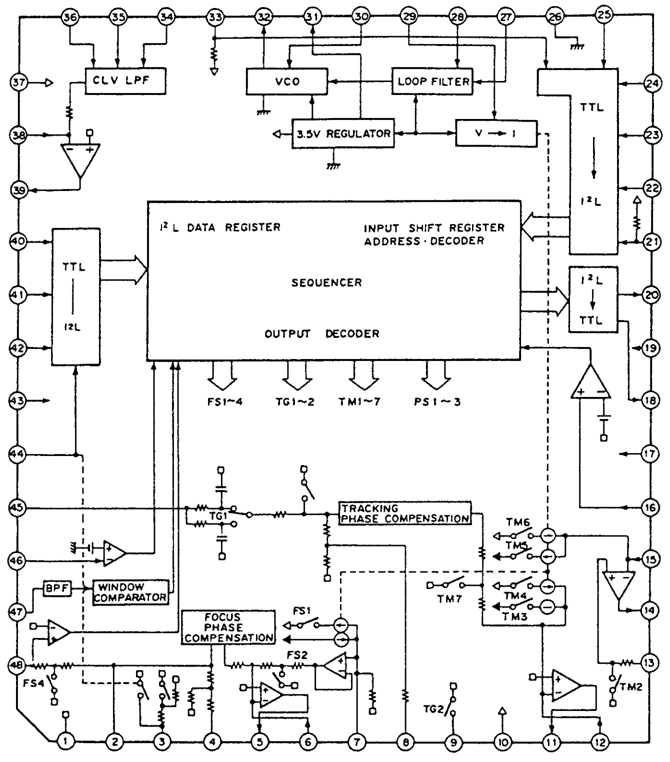


• IC Block Diagrams

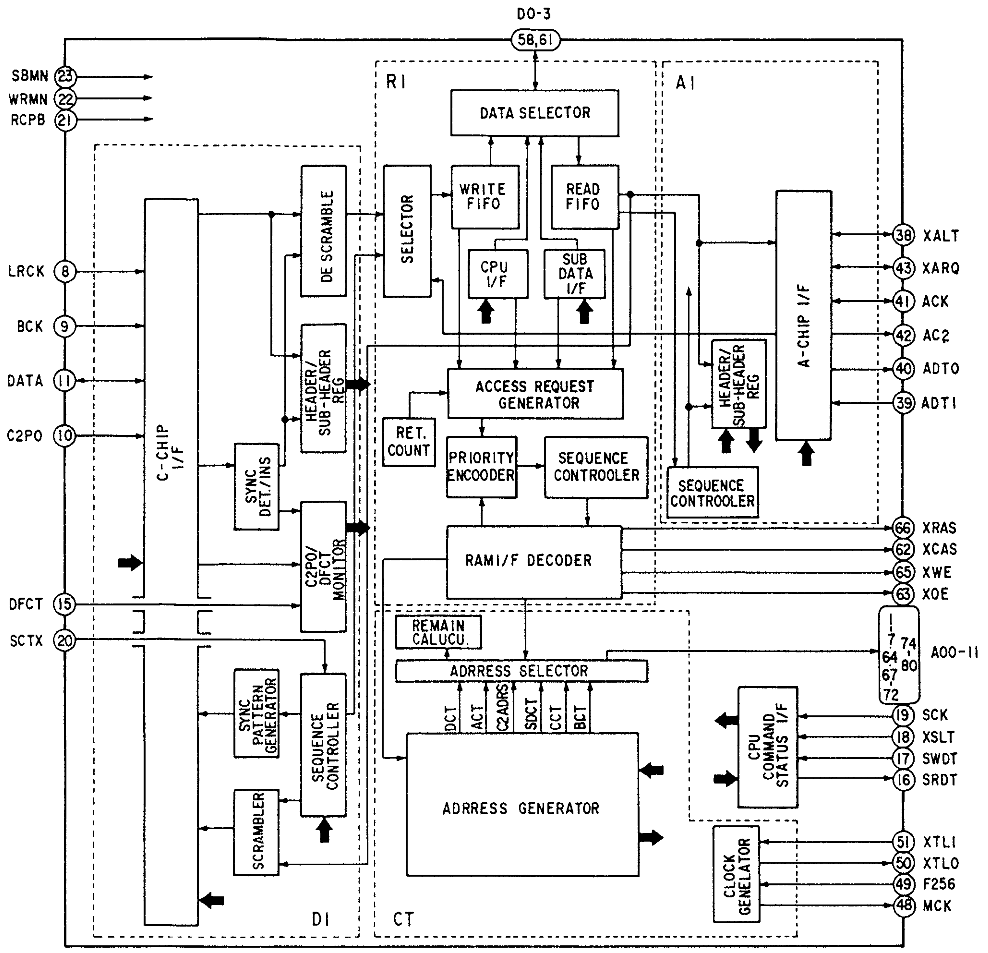
MD SERVO BOARD
IC502 CXA1381R


FOFST
FOKOFST
EQ
RFO
RFI
VEE
EFM
D.GND
ASY
CP
RFSWI
RFSWO
RF Amp.
EQ
EFM Comp
MIRR
ABCD Amp.
REFLECTIVITY
FOK
F.E. Amp
AGC
OFF Track
T.E. Amp.
DEFECT
ADIP Amp.
Tcount
APC
VR
VC
RF1
RF2
-A
-B
-C
-D
-E
-F
TOFST
ATC1
REFLECT
FOK
AGCIN
ABCD
OFTIN
VCC
OFTRK
PKHLD
CC
DFCT
CB
TCOUNT
ATC2
APCDET
LDO
LD
TEMPI
TEMPO
VEE
APCREF
ADIPFM
FE
FBIAS
TE

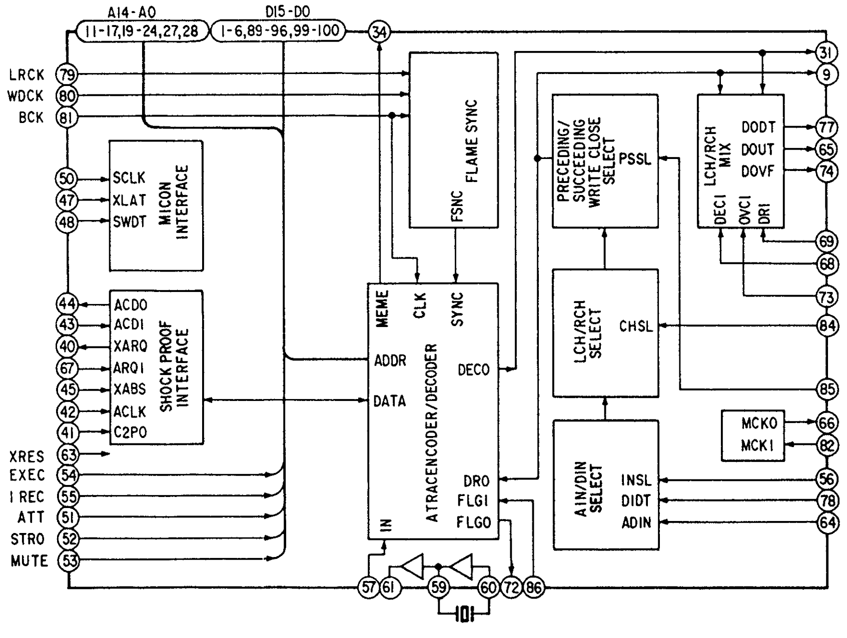
MD SERVO BOARD
IC503 CXA1082BQ


CLV LPF
VCO
LOOP FILTER
3.5V REGULATOR
V → I
TTL
I²L
I²L DATA REGISTER
INPUT SHIFT REGISTER
ADDRESS·DECODER
SEQUENCER
OUTPUT DECODER
FS1~4
TG1~2
TM1~7
PS1~3
TRACKING PHASE COMPENSATION
TG1
TM6
TM5
BPF
WINDOW COMPARATOR
FOCUS PHASE COMPENSATION
FS1
FS2
FS4
TM7
TM4
TM3
TG2
TM2

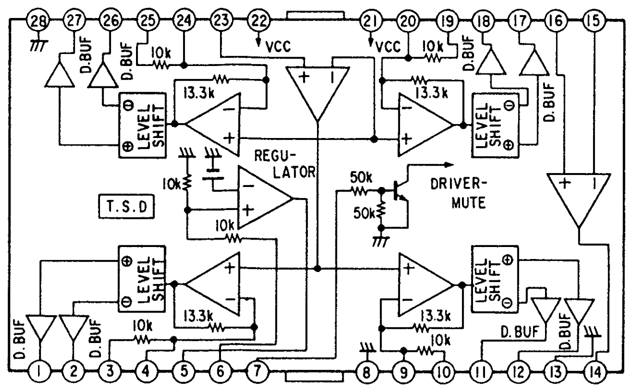
MD SERVO BOARD
IC505 CXD2526Q


D0-3
58,61
SBMN
WRMN
RCPB
LRCK
BCK
DATA
C2PO
DFCT
SCTX
C-CHIP I/F
DE SCRAMBLE
HEADER/SUB-HEADER REG
SYNC DET/INS
C2PO/DFCT MONITOR
SYNC PATTERN GENERATOR
SEQUENCE CONTROLLER
SCRAMBLER
RI
SELECTOR
DATA SELECTOR
WRITE FIFO
READ FIFO
CPU I/F
SUB DATA I/F
ACCESS REQUEST GENERATOR
RET. COUNT
PRIORITY ENCODER
SEQUENCE CONTROOLER
RAMI/F DECODER
REMAIN CALUCU.
ADRESS SELECTOR
DCT
ACT
C2ADRS
SDCT
CCT
BCT
ADRRESS GENERATOR
AI
HEADER/SUB-HEADER REG
A-CHIP I/F
SEQUENCE CONTROLER
CPU COMMAND STATUS I/F
CLOCK GENERATOR
DI
CT
XALT
XARQ
ACK
AC2
ADTO
ADTI
XRAS
XCAS
XWE
XOE
A00-11
SCK
XSLT
SWDT
SRDT
XTLI
XTLO
F256
MCK

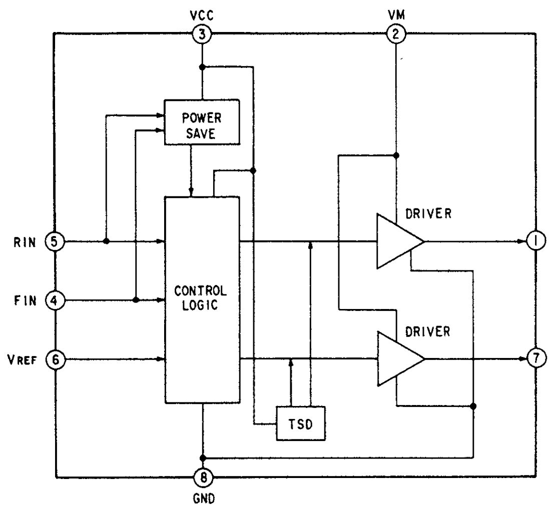
MD SERVO BOARD
IC507, 510 CXD2527R


A14-A0
11-17,19-24,27,28
D15-D0
1-6,89-96,99-100
LRCK
WOCK
BCK
SCLK
XLAT
SWDT
MICON INTERFACE
ACDO
ACDI
XARQ
ARQI
XABS
ACLK
C2PO
SHOCK PROOF INTERFACE
XRES
EXEC
I REC
ATT
STRO
MUTE
FLAME SYNC
FSNC
MEME
CLK
SYNC
ADDR
DATA
DECO
ATRACENCODER/DECODER
IN
DRO
FLGI
FLGO
PRECEDING/SUCCEEDING WRITE CLOSE SELECT
PSSL
LCH/RCH SELECT
CHSL
AIN/DIN SELECT
INSL
DIDT
ADIN
LCH/RCH MIX
DECI
OVCI
DRI
DODT
DOUT
DOVF
MCKO
MCKI

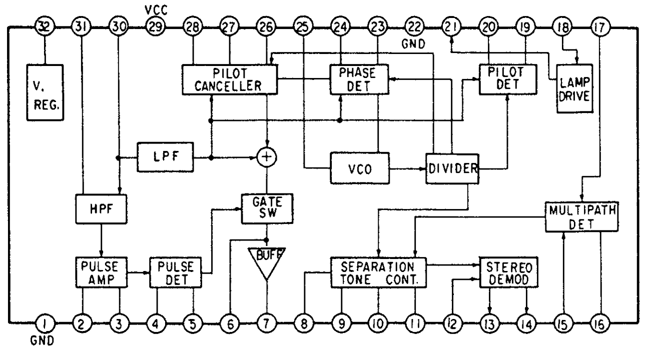
MD SERVO BOARD
IC513 BA6298FP


D.BUF
LEVEL SHIFT
VCC
10k
13.3k
REGU-LATOR
DRIVER-MUTE
50k
T.S.D

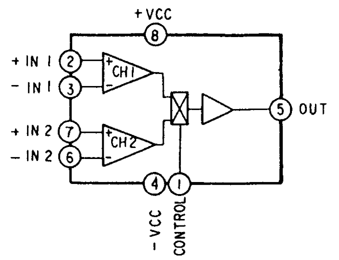
MD SERVO BOARD
IC519 BA6287F


VCC
VM
POWER SAVE
CONTROL LOGIC
DRIVER
DRIVER
RIN
FIN
VREF
OUT1
OUT2
TSD
GND

MAIN BOARD
IC40 AN7464S


VCC
GND
V. REG.
PILOT CANCELLER
PHASE DET
PILOT DET
LAMP DRIVE
LPF
VCO
DIVIDER
HPF
GATE SW
BUFF
MULTIPATH DET
PULSE AMP
PULSE DET
SEPARATION TONE CONT.
STEREO DEMOD
GND

MAIN BOARD
IC104 M5203FP


+VCC
+IN1
-IN1
+IN2
-IN2
CH1
CH2
OUT
-VCC
CONTROL

SECTION 3
EXPLODED VIEWS

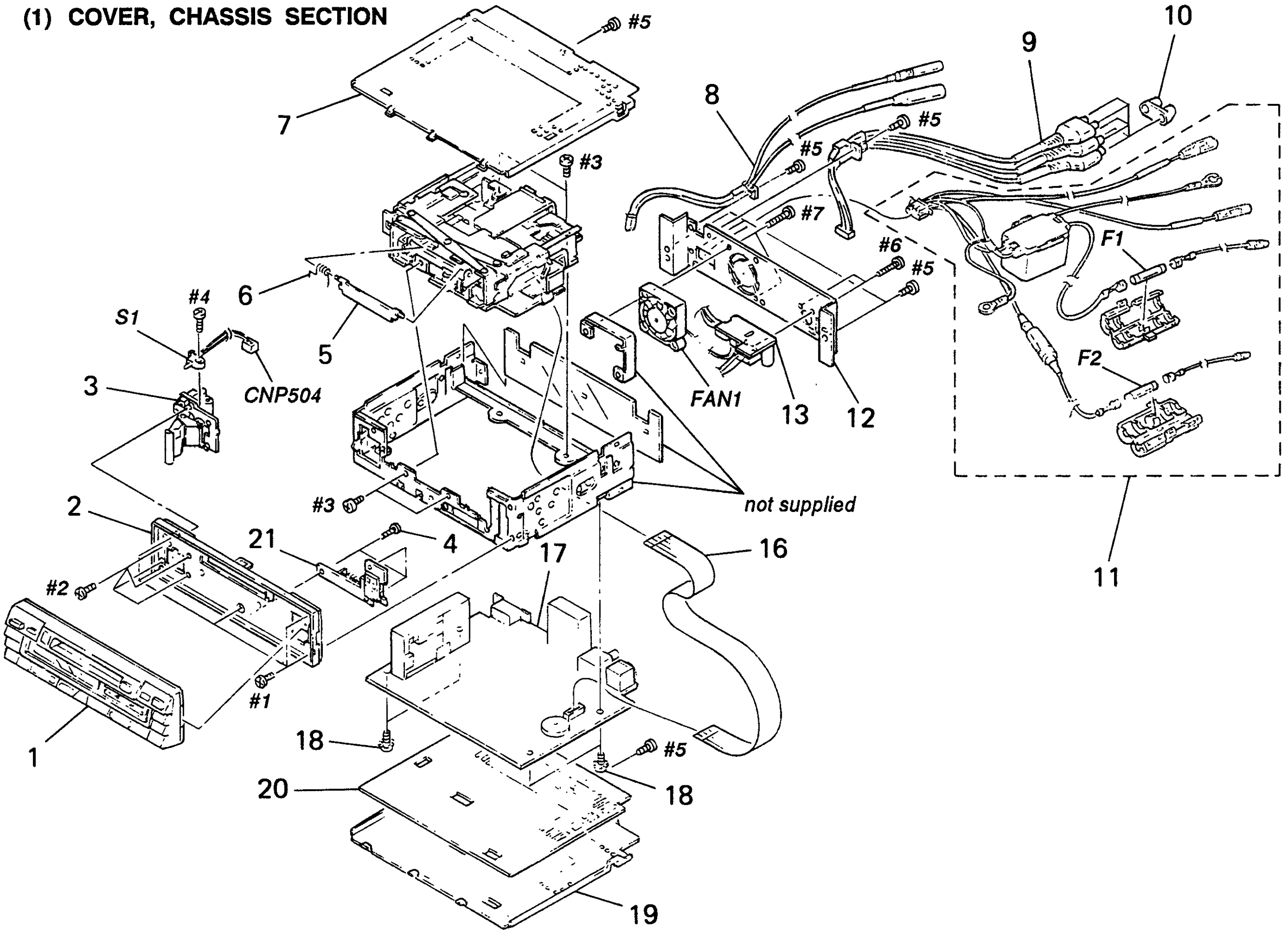
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Abbreviation
  CND: Canadian Model
  G: Germany Model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le neméro spécifié.

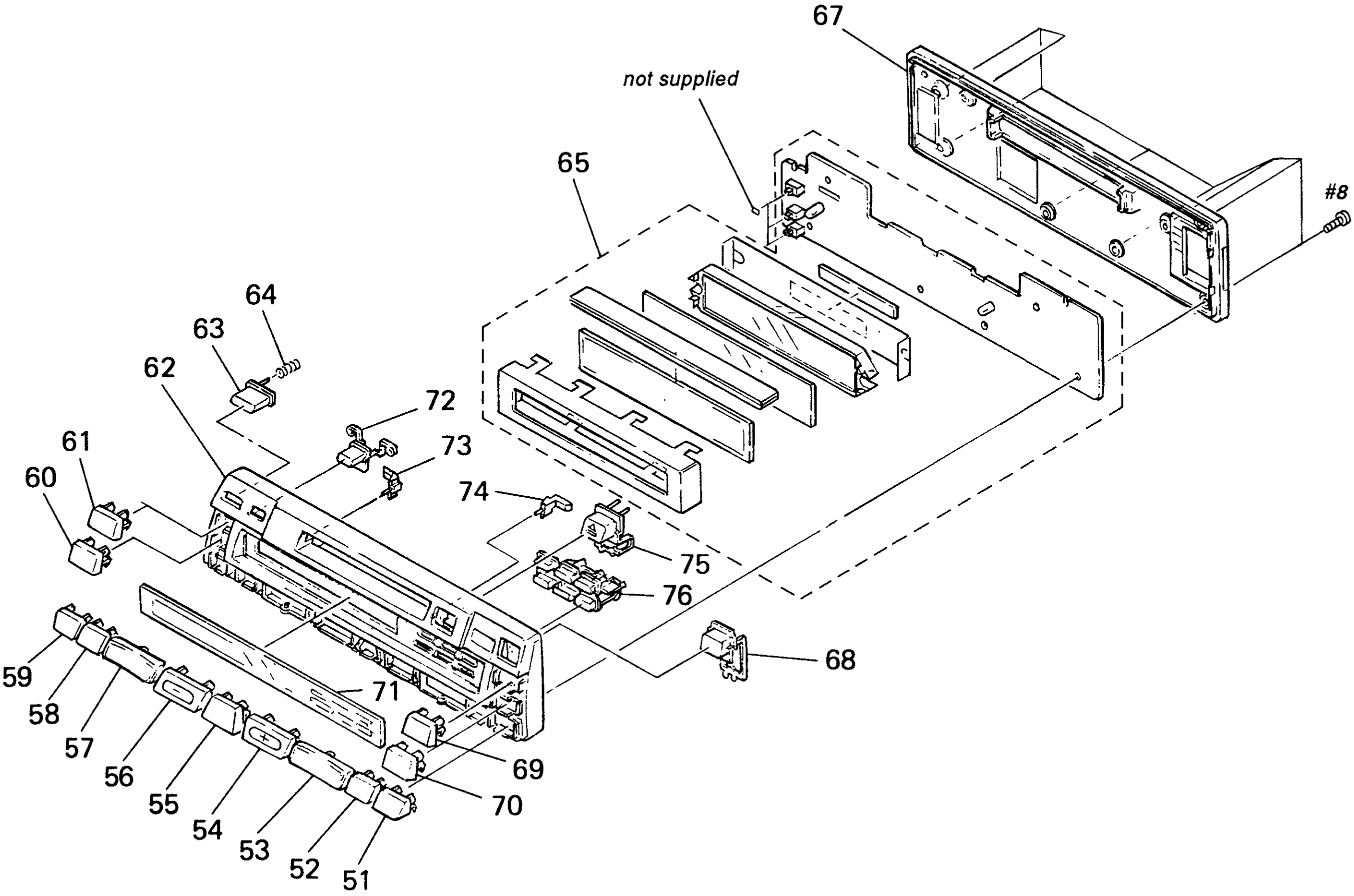
(1) COVER, CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
1	A-3252-548-A	PANEL (FRONT) COMPLETE ASSY (US, CND, E)	
1	A-3252-575-A	PANEL (FRONT) COMPLETE ASSY (AEP, G)	
2	3-384-514-01	PANEL (SUB)	
3	X-3365-855-1	HOLDER (LEVER) ASSY	
5	3-384-525-01	DOOR (HOLDER)	
6	3-384-527-01	SPRING (DOOR)	
* 7	3-384-515-11	COVER	
8	1-690-946-11	CORD (WITH CONNECTOR) (ANT)	
9	1-696-624-11	CORD (WITH CONNECTOR) (AUDIO)	
10	3-339-410-01	COVER (2), PIN JACK	
11	1-696-623-11	CORD (WITH CONNECTOR)	
* 12	X-3365-853-1	PANEL ASSY, BACK	
* 13	1-645-958-12	POWER BOARD	
16	1-646-321-11	PC BOARD, FLEXIBLE (E)	
16	1-646-321-21	PC BOARD, FLEXIBLE (US, CND, AEP, G)	

Ref. No.	Part No.	Description	Remark
* 17	A-3295-301-A	MAIN BOARD, COMPLETE (AEP)	
* 17	A-3295-302-A	MAIN BOARD, COMPLETE (G)	
* 17	A-3295-303-A	MAIN BOARD, COMPLETE (US, CND)	
* 17	A-3295-304-A	MAIN BOARD, COMPLETE (E)	
18	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
* 19	3-384-515-01	COVER	
* 20	3-384-513-01	SHEET, INSULATING	
* 21	1-645-957-11	CONNECTOR BOARD	
* CNP504	1-563-470-11	HOUSING, CONNECTOR 2P	
F1	1-532-419-11	FUSE, GLASS TUBE 3.15A	
F2	1-532-414-11	FUSE, GLASS TUBE 1A	
FAN1	1-541-973-11	MOTOR (FAN)	
S1	1-570-771-11	SWITCH	

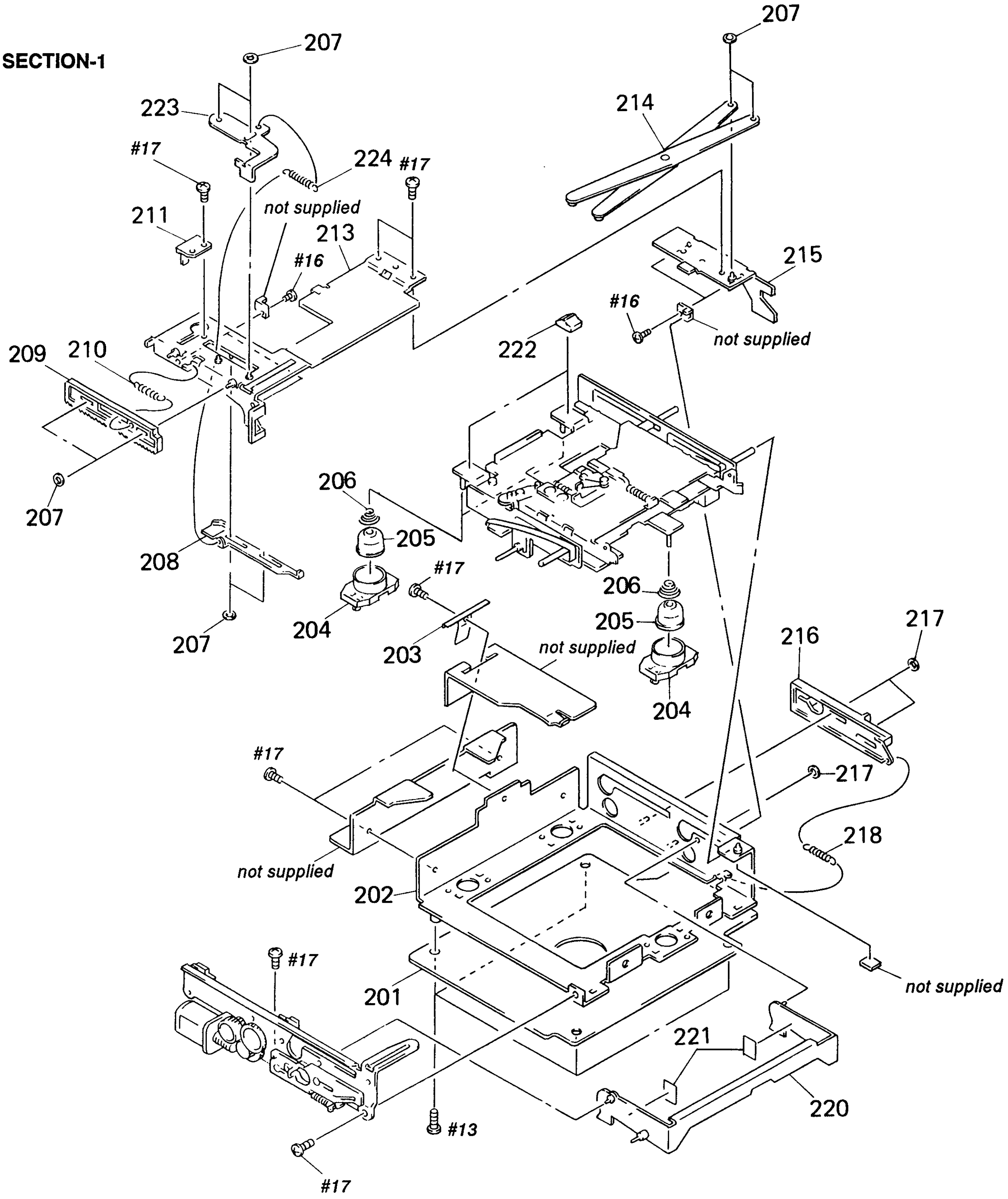
(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-384-501-01	BUTTON (CD)	
52	3-384-500-01	BUTTON (BTM)	
53	3-384-499-01	BUTTON (DISC)	
54	3-384-498-01	BUTTON (+)	
55	3-384-497-01	BUTTON (SEL)	
56	3-384-496-01	BUTTON (-)	
57	3-384-495-01	BUTTON (AMS)	
58	3-384-494-01	BUTTON (FILE)	
59	3-384-493-01	BUTTON (MUTE)	
60	3-384-490-31	BUTTON (A)	
61	3-384-490-11	BUTTON (A) (AEP, G)	
61	3-384-490-21	BUTTON (A) (US, CND, E)	
62	3-384-491-01	PANEL (FRONT)	
63	3-384-502-01	BUTTON (REL)	

Ref. No.	Part No.	Description	Remark
64	3-573-461-00	SPRING, COMPRESSION	
65	1-466-812-11	KEY BOARD UNIT	
67	3-384-520-01	PANEL (REAR)	
68	3-384-510-01	BUTTON (MD)	
69	3-384-492-11	BUTTON (B) (AEP, G)	
69	3-384-492-21	BUTTON (B) (US, CND, E)	
70	3-384-492-31	BUTTON (B)	
71	3-384-505-01	PLATE, INDICATION	
72	3-384-503-01	BUTTON (OFF)	
73	3-384-506-01	PLATE (L), LIGHT GUIDE	
74	3-384-512-01	PLATE (R), LIGHT GUIDE	
75	3-384-504-01	BUTTON (EJECT)	
76	3-384-521-01	BUTTON (6 GANG)	

(3) MD SECTION-1


207
207
223
214
#17
224
#17
not supplied
211
213
#16
215
#16
not supplied
222
209
210
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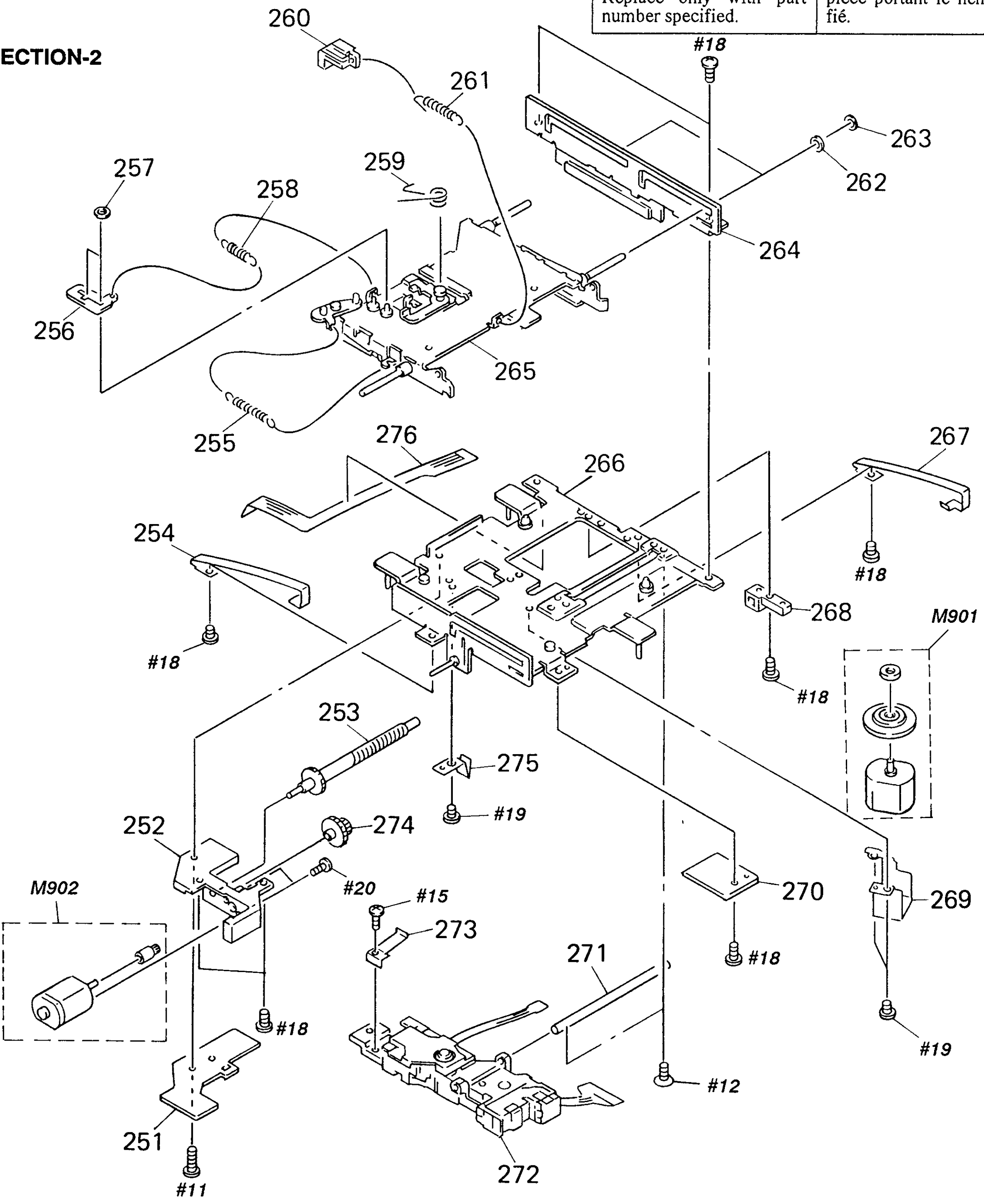
206
205
208
#17
206
205
204
207
203
not supplied
204
216
217
#17
217
218
not supplied
202
#17
201
not supplied
221
220
#13
#17

Ref. No.	Part No.	Description	Remark
* 201	A-3222-496-A	MD BOARD, COMPLETE	
* 202	X-3365-841-1	CHASSIS ASSY, MD	
* 203	3-384-423-01	SPRING (LL)	
204	3-384-483-01	DAMPER (NKZ)	
* 205	3-384-484-01	COVER (NKZ)	
206	3-384-456-01	SPRING (FL), CONE COIL	
207	3-573-936-00	STOPPER, REEL	
208	3-384-424-01	SLIDER (CL)	
209	3-384-442-01	RACK	
210	3-365-330-01	SPRING, TENSION	
* 211	3-384-426-01	LEVER (SW)	
* 213	X-3365-838-1	LOADER (L) ASSY	
214	X-3365-840-1	LEVER (X) ASSY	
* 215	X-3365-837-1	LOADER (R) ASSY	
216	3-384-438-01	LEVER (LOCK R)	
217	3-377-719-01	WASHER, POLYETHYLENE	
218	3-567-110-00	SPRING, TENSION	
* 220	X-3365-842-1	SHUTTER ASSY	
221	3-348-750-01	CUSHION (DAMPER)	
* 223	3-385-638-01	LEVER (RT)	
224	3-376-341-01	SPRING, TENSION	

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le neméro spécifié.

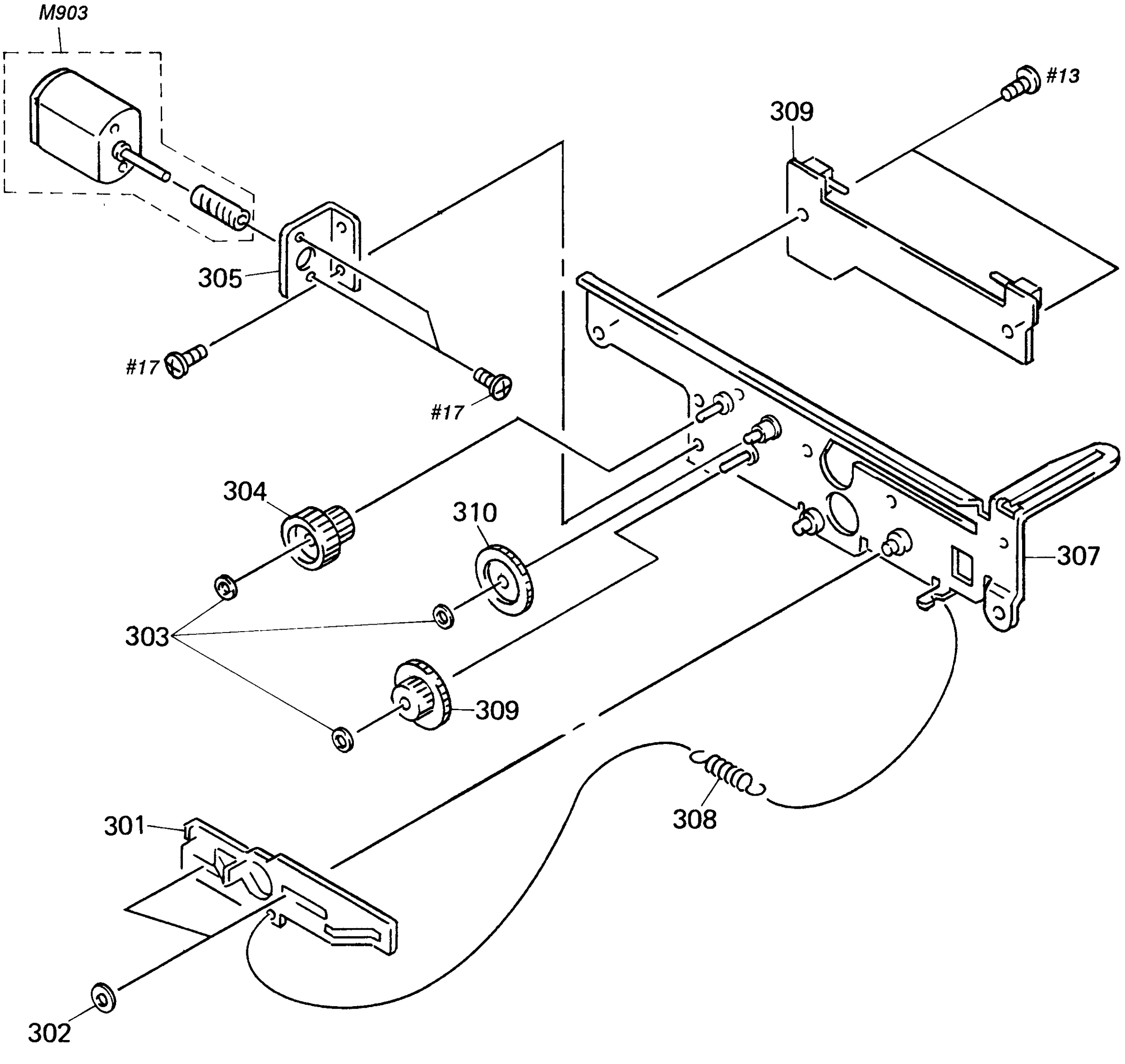
(4) MD SECTION-2



Ref. No.	Part No.	Description	Remark
* 251	1-646-323-11	RELAY BOARD	
252	X-3365-843-1	HOLDER (SL) ASSY	
253	X-3365-846-1	SHAFT (FEED) ASSY	
254	3-384-466-01	SPRING (CHL)	
* 256	3-384-418-01	JOINT	
257	3-311-815-11	WASHER, POLYETHYLENE	
258	3-307-378-00	SPRING, TENSION	
259	3-384-489-01	SPRING (EJS)	
260	3-384-434-01	LEVER (EJ)	
261	3-384-457-01	SPRING, TENSION	
262	3-738-212-11	RETAINER, THRUST, REEL TABLE	
263	3-385-409-01	WASHER, POLYETHYLENE	
* 264	X-3365-847-1	CHASSIS (R) ASSY	
* 265	X-3365-839-1	HOLDER ASSY	

Ref. No.	Part No.	Description	Remark
* 266	X-3365-844-1	CHASSIS (OP) ASSY	
267	3-384-467-01	SPRING (CHR)	
268	3-384-464-01	BEARING (FEED)	
269	3-384-472-01	RTAINER (SP)	
* 270	1-646-324-11	DISCRIMINATION BOARD	
271	3-384-460-01	SHAFT (KJ)	
⚠272	8-848-271-01	DEVICE, MINIATURE DISK KMS-150A	
273	3-384-475-01	SPRING (RACK 3)	
274	3-384-836-01	GEAR (SLB)	
275	3-384-465-01	SPRING (FEED SHAFT)	
276	1-645-960-11	PC BOARD, SENSOR FLEXIBLE	
M901	X-3365-848-2	SPINDLE MOTOR ASSY	
M902	X-3365-845-1	SLED MOTOR ASSY	
M903	X-3365-849-1	LOADING MOTOR ASSY	

(5) MD SECTION-3



M903
#13
309
305
#17
#17
304
310
307
303
309
308
301
302

Ref. No.	Part No.	Description	Remark
301	3-384-437-01	LEVER (LOCK L)	
302	3-377-719-01	WASHER, POLYETHYLENE	
303	3-573-936-00	STOPPER, REEL	
304	3-384-440-01	WHEEL, WORM	
* 305	3-384-419-01	BRACKET (M)	

Ref. No.	Part No.	Description	Remark
* 306	1-646-322-11	LOADING BOARD	
* 307	X-3365-836-1	CHASSIS (L) ASSY	
308	3-567-110-00	SPRING, TENSION	
309	3-384-441-01	GEAR (A)	
310	3-384-435-01	GEAR (B)	

SECTION 4
ELECTRICAL PARTS LIST

CONNECTOR LOADING MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Abbreviation
  CND: Canadian Model
  G: Germany Model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le neméro spécifié.

When including parts by reference number, please include the board name.

Ref. No.	Part No.	Description	Remark
*	1-645-957-11	CONNECTOR BOARD ****************	
		< CONNECTOR >	
* CNP702	1-691-558-11	SOCKET, CONNECTOR 12P	
* CNP703	1-691-740-11	CONNECTOR, BOARD TO BOARD 14P	
		< SWITCH >	
S701	1-572-648-11	SWITCH, TACT (RESET)	
*	1-646-324-11	DISCRIMINATION BOARD	
		< SWITCH >	
SW632	1-692-373-21	SWITCH, PUSH (1 KEY) (PB ONLY DISC/REL/PB DISC)	
**			
*	1-646-322-11	LOADING BOARD **************	
		< SWITCH >	
SW621	1-572-467-31	SWITCH, PUSH (1 KEY) (LOADING END)	
SW622	1-572-467-31	SWITCH, PUSH (1 KEY) (LOADING START/EJECT END)	
**			
*	A-3295-301-A	MAIN BOARD, COMPLETE (AEP) ***************************	
*	A-3295-302-A	MAIN BOARD, COMPLETE (G) *************************	
*	A-3295-303-A	MAIN BOARD, COMPLETE (US, CND) ******************************	
*	A-3295-304-A	MAIN BOARD, COMPLETE (E) *************************	
	7-621-259-25	SCREW +P 2.6X4	
		< BUZZER >	
BZ501	1-529-078-11	BUZZER, PIEZOELECTRIC	
		< CAPACITOR >	
C1	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C2	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C3	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C4	1-124-257-00	ELECT 2.2uF 20% 50V	
C5	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C6	1-124-589-11	ELECT 47uF 20% 16V	
C7	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
C8	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C9	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C11	1-126-157-11	ELECT 10uF 20% 16V	
C12	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C13	1-163-229-11	CERAMIC CHIP 12PF 5% 50V	
C14	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C15	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C16	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C17	1-126-163-11	ELECT 4.7uF 20% 50V	
C18	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	
C19	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C22	1-137-319-11	FILM CHIP 0.0047uF 5% 16V	
C23	1-104-640-11	FILM CHIP 0.22uF 5% 16V	
C24	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C25	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C26	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C27	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C28	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C29	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C30	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C32	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C33	1-126-609-11	ELECT CHIP 3.3uF 20% 25V	
C38	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C39	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C40	1-104-515-11	ELECT CHIP 47uF 20% 10V	
C41	1-137-322-11	FILM CHIP 0.0082uF 5% 16V	
C42	1-104-516-11	ELECT CHIP 0.1uF 20% 50V	
C43	1-163-195-00	CERAMIC CHIP 390PF 5% 50V	
C44	1-104-517-11	ELECT CHIP 0.22uF 20% 50V	
C45	1-104-516-11	ELECT CHIP 0.1uF 20% 50V	
C46	1-104-517-11	ELECT CHIP 0.22uF 20% 50V	
C48	1-137-331-11	FILM CHIP 0.047uF 5% 16V	
C49	1-137-331-11	FILM CHIP 0.047uF 5% 16V	

Ref. No.	Part No.	Description			Remark
C50	1-126-593-11	ELECT CHIP	0.47uF	20%	50V
C51	1-164-756-11	CERAMIC CHIP	0.0033uF	5%	50V
C52	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C53	1-126-592-11	ELECT CHIP	4.7uF	20%	16V
C54	1-163-058-00	CERAMIC CHIP	0.0082uF	10%	50V (AEP, G)
C54	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V (US, CND, E)
C55	1-137-326-11	FILM CHIP	0.018uF	5%	16V (AEP, E, G)
C55	1-137-328-11	FILM CHIP	0.027uF	5%	16V (US, CND)
C56	1-137-326-11	FILM CHIP	0.018uF	5%	16V (AEP, E, G)
C56	1-137-328-11	FILM CHIP	0.027uF	5%	16V (US, CND)
C57	1-126-592-11	ELECT CHIP	4.7uF	20%	16V
C58	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C59	1-104-515-11	ELECT CHIP	47uF	20%	10V
C60	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C61	1-104-515-11	ELECT CHIP	47uF	20%	10V
C62	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C63	1-163-075-00	CERAMIC CHIP	0.047uF		50V
C64	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C65	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C66	1-104-518-11	ELECT CHIP	10uF	20%	16V (AEP, G)
C67	1-104-517-11	ELECT CHIP	0.22uF	20%	50V
C68	1-163-135-00	CERAMIC CHIP	560PF	5%	50V (AEP, G)
C69	1-163-038-00	CERAMIC CHIP	0.1uF		25V (AEP, G)
C70	1-126-610-11	ELECT CHIP	2.2uF	20%	35V (AEP, G)
C71	1-163-229-11	CERAMIC CHIP	12PF	5%	50V (AEP, G)
C72	1-163-229-11	CERAMIC CHIP	12PF	5%	50V (AEP, G)
C73	1-163-038-00	CERAMIC CHIP	0.1uF		25V (AEP, G)
C74	1-104-518-11	ELECT CHIP	10uF	20%	16V (AEP, G)
C75	1-163-038-00	CERAMIC CHIP	0.1uF		25V (AEP, G)
C76	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C77	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C78	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C79	1-126-157-11	ELECT	10uF	20%	16V
C81	1-137-286-11	FILM CHIP	0.0022uF	5%	16V
C90	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C91	1-163-125-00	CERAMIC CHIP	220PF	5%	50V (US, CND, E)
C101	1-124-234-00	ELECT	22uF	20%	16V
C102	1-124-234-00	ELECT	22uF	20%	16V
C103	1-104-518-11	ELECT CHIP	10uF	20%	16V
C104	1-104-518-11	ELECT CHIP	10uF	20%	16V
C105	1-104-515-11	ELECT CHIP	47uF	20%	10V
C106	1-137-303-11	FILM CHIP	0.056uF	5%	16V
C107	1-137-303-11	FILM CHIP	0.056uF	5%	16V
C108	1-137-316-11	FILM CHIP	0.0027uF	5%	16V
C109	1-137-328-11	FILM CHIP	0.027uF	5%	16V
C120	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C123	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C124	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C125	1-163-117-00	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C126	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C201	1-124-234-00	ELECT	22uF	20%	16V
C202	1-124-234-00	ELECT	22uF	20%	16V
C203	1-104-518-11	ELECT CHIP	10uF	20%	16V
C204	1-104-518-11	ELECT CHIP	10uF	20%	16V
C205	1-104-515-11	ELECT CHIP	47uF	20%	10V
C206	1-137-303-11	FILM CHIP	0.056uF	5%	16V
C207	1-137-303-11	FILM CHIP	0.056uF	5%	16V
C208	1-137-316-11	FILM CHIP	0.0027uF	5%	16V
C209	1-137-328-11	FILM CHIP	0.027uF	5%	16V
C220	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C223	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C224	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C225	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C226	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C301	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C302	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C303	1-126-594-11	ELECT CHIP	1uF	20%	50V
C304	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C308	1-104-633-11	ELECT	180uF	20%	16V
C309	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C310	1-104-633-11	ELECT	180uF	20%	16V
C501	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C502	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C503	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C505	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C506	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C507	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C508	1-164-346-11	CERAMIC CHIP	1uF		16V
C509	1-125-701-11	CAP, DOUBLE LAYER	0.047F		
C510	1-104-633-11	ELECT	180uF	20%	16V
C511	1-104-633-11	ELECT	180uF	20%	16V
C512	1-135-166-21	TANTALUM CHIP	47uF	10%	10V
C513	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C514	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C515	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C516	1-104-518-11	ELECT CHIP	10uF	20%	16V
C517	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C518	1-128-339-11	ELECT	2200uF	20%	16V
C519	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C520	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C521	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C523	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C524	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C541	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C542	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C551	1-104-518-11	ELECT CHIP	10uF	20%	16V

MAIN

Ref. No.	Part No.	Description	Remark
C552	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C585	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	(E)
C585	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	(US, CND, AEP, G)
C586	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	(E)
C586	1-163-243-11	CERAMIC CHIP 47PF 5% 50V	(US, CND, AEP, G)
C601	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C602	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C645	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C650	1-163-229-11	CERAMIC CHIP 12PF 5% 50V	
C901	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C902	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C903	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C904	1-163-235-11	CERAMIC CHIP 22PF 5% 50V	
C905	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C906	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C907	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C908	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C909	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C911	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C912	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C913	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C915	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C916	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C917	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C918	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C919	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C991	1-135-210-11	TANTALUM CHIP 4.7uF 20% 10V	
C992	1-164-222-11	CERAMIC CHIP 0.22uF 25V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN301	1-506-991-11	PIN, CONNECTOR (PC BOARD) 9P	
* CN501	1-691-739-11	CONNECTOR, BOARD TO BOARD 14P	
CN502	1-580-907-11	PLUG, CONNECTOR (UNILINK)	
CN503	1-691-280-11	CONNECTOR	
* CN504	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P	
* CN505	1-573-261-41	PIN, CONNECTOR 2P	
* CN901	1-695-577-21	SOCKET, CONNECTOR 19P	
CN902	1-695-546-11	PLUG, CONNECTOR (DIGITAL OUT (OPTICAL))	

< DIODE >

Ref. No.	Part No.	Description	Remark
D1	8-719-971-18	DIODE 1SS318	
D2	8-719-971-18	DIODE 1SS318	
D4	8-719-977-00	DIODE DTZ5.1C	
D7	8-719-976-85	DIODE DTZ3.6B	
D8	8-719-988-62	DIODE 1SS355	
D101	8-719-977-17	DIODE DTZ7.5C	
D201	8-719-977-17	DIODE DTZ7.5C	
D301	8-719-976-96	DIODE DTZ4.7C	
D302	8-719-976-96	DIODE DTZ4.7C	
D501	8-719-977-31	DIODE DTZ11A	
D502	8-719-977-24	DIODE DTZ9.1B	
D503	8-719-977-03	DIODE DTZ5.6B	
D504	8-719-977-03	DIODE DTZ5.6B	
D505	8-719-988-62	DIODE 1SS355	
D506	8-719-988-62	DIODE 1SS355	
D507	8-719-988-62	DIODE 1SS355	
D508	8-719-988-62	DIODE 1SS355	
D509	8-719-104-34	DIODE 1S2836	
D510	8-719-977-07	DIODE DTZ6.2B	
D511	8-719-977-07	DIODE DTZ6.2B	
D512	8-719-977-03	DIODE DTZ5.6B	
D513	8-719-977-24	DIODE DTZ9.1B	
D514	8-719-210-33	DIODE EC10DS2	
D515	8-719-977-07	DIODE DTZ6.2B	
D516	8-719-977-54	DIODE DTZ16C	
D517	8-719-977-07	DIODE DTZ6.2B	
D518	8-719-988-62	DIODE 1SS355	
D519	8-719-977-07	DIODE DTZ6.2B	
D520	8-719-977-07	DIODE DTZ6.2B	
D521	8-719-977-07	DIODE DTZ6.2B	
D522	8-719-977-07	DIODE DTZ6.2B	
D523	8-719-977-31	DIODE DTZ11A	
D524	8-719-977-31	DIODE DTZ11A	
D525	8-719-977-07	DIODE DTZ6.2B	
D526	8-719-977-07	DIODE DTZ6.2B	
D527	8-719-977-31	DIODE DTZ11A	
D528	8-719-977-07	DIODE DTZ6.2B	
D529	8-719-977-07	DIODE DTZ6.2B	
D530	8-719-977-07	DIODE DTZ6.2B	
D531	8-719-977-07	DIODE DTZ6.2B	
D532	8-719-988-62	DIODE 1SS355	
D533	8-719-988-62	DIODE 1SS355	
D534	8-719-977-07	DIODE DTZ6.2B	
D535	8-719-988-62	DIODE 1SS355	
D536	8-719-988-62	DIODE 1SS355	
D537	8-719-988-62	DIODE 1SS355	
D538	8-719-988-62	DIODE 1SS355	
D539	8-719-977-07	DIODE DTZ6.2B	
D540	8-719-977-07	DIODE DTZ6.2B	
D541	8-719-988-62	DIODE 1SS355	
D542	8-719-977-07	DIODE DTZ6.2B	
D551	8-719-977-00	DIODE DTZ5.1C	
D601	8-719-988-62	DIODE 1SS355	
D602	8-719-988-62	DIODE 1SS355	(AEP, G)
D905	8-719-988-62	DIODE 1SS355	

< DD CONVERTER >

Ref. No.	Part No.	Description	Remark
DD1	1-466-816-11	CONVERTER UNIT, DC/DC	

< FERRITE BEAD >

Ref. No.	Part No.	Description	Remark
FB101	1-543-948-11	BEAD, FERRITE (CHIP)	
FB102	1-543-948-11	BEAD, FERRITE (CHIP)	
FB103	1-543-948-11	BEAD, FERRITE (CHIP)	
FB104	1-543-948-11	BEAD, FERRITE (CHIP)	
FB201	1-543-948-11	BEAD, FERRITE (CHIP)	
FB202	1-543-948-11	BEAD, FERRITE (CHIP)	
FB203	1-543-948-11	BEAD, FERRITE (CHIP)	
FB204	1-543-948-11	BEAD, FERRITE (CHIP)	
FB301	1-543-948-11	BEAD, FERRITE (CHIP)	
FB601	1-543-948-11	BEAD, FERRITE (CHIP)	
FB901	1-543-948-11	BEAD, FERRITE (CHIP)	
FB902	1-543-948-11	BEAD, FERRITE (CHIP)	
FB903	1-543-948-11	BEAD, FERRITE (CHIP)	
FB904	1-543-948-11	BEAD, FERRITE (CHIP)	
FB905	1-543-948-11	BEAD, FERRITE (CHIP)	
FB906	1-543-948-11	BEAD, FERRITE (CHIP)	
FB907	1-543-948-11	BEAD, FERRITE (CHIP)	
FB908	1-543-948-11	BEAD, FERRITE (CHIP)	

< IC >

Ref. No.	Part No.	Description	Remark
IC10	8-759-069-48	IC LA1061MTP-T1	
IC20	8-759-823-81	IC LC7216M	
IC40	8-759-070-45	IC AN7464S	
IC50	8-759-065-98	IC SAA6579T-T (AEP,G)	
IC60	8-759-823-84	IC LC7071NM (AEP,G)	
IC101	8-759-909-71	IC BA4558F	
IC102	8-759-909-71	IC BA4558F	
IC103	8-759-909-71	IC BA4558F	
IC104	8-759-604-64	IC M5203FP	
IC201	8-759-909-71	IC BA4558F	
IC202	8-759-909-71	IC BA4558F	
IC203	8-759-909-71	IC BA4558F	
IC204	8-759-604-64	IC M5203FP	
IC301	8-759-820-15	IC LC7537AN	
IC302	8-759-932-64	IC BU4052BF	
IC303	8-759-909-71	IC BA4558F	
IC501	8-759-100-93	IC uPC393G2	
IC502	8-759-940-45	IC S-8054HN-CB-S	
IC503	8-759-421-13	IC AN8009M	
IC504	8-759-166-46	IC uPD75518GF-090-3B9	
IC601	8-759-089-50	IC uPD75116GF-G00-3BE	
IC602	8-759-513-42	IC X24C04SI (US,CND,E)	
IC602	8-759-513-44	IC X24C16SI (AEP,G)	
IC901	8-759-088-64	IC LC8901Q	
IC902	8-759-088-65	IC AK4328-VS	
IC904	8-759-711-58	IC NJM78L05UA	
IC905	8-759-045-17	IC NJM79L05UA	
IC991	8-759-711-58	IC NJM78L05UA	
IC992	8-759-078-45	IC NJM78L09UA	

< JACK >

Ref. No.	Part No.	Description	Remark
* J701	1-563-961-11	SOCKET, CONNECTOR (MAIN (FM/AM))	
* J702	1-563-961-11	SOCKET, CONNECTOR (SUB (FM))	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remark
JR1	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR501	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR502	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR601	1-216-295-00	METAL CHIP 0 5% 1/10W	(US,CND)
JR602	1-216-864-11	METAL CHIP 0 5% 1/16W	(US,CND,E)
JR603	1-216-864-11	METAL CHIP 0 5% 1/16W	(US,CND,E)
JR604	1-216-864-11	METAL CHIP 0 5% 1/16W	(US,CND)
JR605	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR606	1-216-295-00	METAL CHIP 0 5% 1/10W	(US,CND,E)
JR607	1-216-295-00	METAL CHIP 0 5% 1/10W	(US,CND,E)
JR608	1-216-295-00	METAL CHIP 0 5% 1/10W	(US,CND,E)
JR609	1-216-295-00	METAL CHIP 0 5% 1/10W	(US,CND,E)
JR610	1-216-295-00	METAL CHIP 0 5% 1/10W	(US,CND,E)
JR611	1-216-295-00	METAL CHIP 0 5% 1/10W	(US,CND,E)

< COIL >

Ref. No.	Part No.	Description	Remark
L1	1-412-137-11	INDUCTOR 10uH	
L2	1-412-137-11	INDUCTOR 10uH	
L4	1-412-137-11	INDUCTOR 10uH	
L6	1-412-137-11	INDUCTOR 10uH (AEP,G)	
L7	1-410-200-31	INDUCTOR CHIP 4.7uH	
L21	1-412-138-11	INDUCTOR 100uH	
L501	1-412-137-11	INDUCTOR 10uH	
L601	1-412-137-11	INDUCTOR 10uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q1	8-729-901-01	TRANSISTOR DTC144EK	
Q2	8-729-901-04	TRANSISTOR DTA114EK	
Q3	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q5	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q6	8-729-216-22	TRANSISTOR 2SA1162-G	
Q8	8-729-809-71	TRANSISTOR 2SK536	
Q9	8-729-900-53	TRANSISTOR DTC114EK	
Q10	8-729-923-73	TRANSISTOR DTA123YK	
Q11	8-729-923-73	TRANSISTOR DTA123YK	
Q12	8-729-901-01	TRANSISTOR DTC144EK	
Q13	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q21	8-729-901-06	TRANSISTOR DTA144EK	

MAIN

Ref. No.	Part No.	Description	Remark
Q101	8-729-920-21	TRANSISTOR DTC314TKH04	
Q102	8-729-920-21	TRANSISTOR DTC314TKH04	
Q103	8-729-920-21	TRANSISTOR DTC314TKH04	
Q104	8-729-920-21	TRANSISTOR DTC314TKH04	
Q201	8-729-920-21	TRANSISTOR DTC314TKH04	
Q202	8-729-920-21	TRANSISTOR DTC314TKH04	
Q203	8-729-920-21	TRANSISTOR DTC314TKH04	
Q204	8-729-920-21	TRANSISTOR DTC314TKH04	
Q301	8-729-901-05	TRANSISTOR DTA124EK	
Q302	8-729-920-21	TRANSISTOR DTC314TKH04	
Q303	8-729-920-21	TRANSISTOR DTC314TKH04	
Q304	8-729-901-05	TRANSISTOR DTA124EK	
Q305	8-729-920-21	TRANSISTOR DTC314TKH04	
Q501	8-729-901-05	TRANSISTOR DTA124EK	
Q502	8-729-901-00	TRANSISTOR DTC124EK	
Q503	8-729-921-48	TRANSISTOR 2SD1760F5-Q	
Q504	8-729-921-48	TRANSISTOR 2SD1760F5-Q	
Q506	8-729-216-22	TRANSISTOR 2SA1162-G	
Q508	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q509	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q511	8-729-216-22	TRANSISTOR 2SA1162-G	
Q512	8-729-216-22	TRANSISTOR 2SA1162-G	
Q513	8-729-216-22	TRANSISTOR 2SA1162-G	
Q514	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q515	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q516	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q517	8-729-105-29	TRANSISTOR 2SA1385-L	
Q518	8-729-901-00	TRANSISTOR DTC124EK	
Q520	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q521	8-729-105-29	TRANSISTOR 2SA1385-L	
Q522	8-729-901-00	TRANSISTOR DTC124EK	
Q523	8-729-921-48	TRANSISTOR 2SD1760F5-Q	
Q524	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q525	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q526	8-729-901-01	TRANSISTOR DTC144EK	
Q528	8-729-901-00	TRANSISTOR DTC124EK	
Q529	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q530	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q531	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q532	8-729-904-57	TRANSISTOR DTB114EK	
Q533	8-729-900-53	TRANSISTOR DTC114EK	
Q534	8-729-901-04	TRANSISTOR DTA114EK	
Q535	8-729-900-53	TRANSISTOR DTC114EK	
Q536	8-729-900-53	TRANSISTOR DTC114EK	
Q537	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q601	8-729-904-57	TRANSISTOR DTB114EK (AEP,G)	
Q904	8-729-904-75	TRANSISTOR DTD114EK	
Q905	8-729-904-57	TRANSISTOR DTB114EK	

Ref. No.	Part No.	Description	Remark
Q906	8-729-920-21	TRANSISTOR DTC314TKH04	
Q907	8-729-920-21	TRANSISTOR DTC314TKH04	
Q991	8-729-904-57	TRANSISTOR DTB114EK	
Q992	8-729-901-05	TRANSISTOR DTA124EK	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R1	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R2	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R3	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R4	1-216-041-00	METAL CHIP 470 5% 1/10W	
R5	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R6	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R7	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R8	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R9	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R10	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R11	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R12	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R13	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R14	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R15	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R16	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R17	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R18	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R19	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R20	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R21	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R22	1-216-082-00	METAL GLAZE 24K 5% 1/10W	
R23	1-216-295-00	METAL CHIP 0 5% 1/10W	
R24	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R25	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R26	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R27	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R30	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R31	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R32	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R33	1-216-150-00	METAL GLAZE 10 5% 1/8W	
R34	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R35	1-216-103-00	METAL CHIP 180K 5% 1/10W	
R36	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R37	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R38	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R39	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R40	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R41	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R42	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R43	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	
R44	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R46	1-216-089-00	METAL CHIP 47K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R47	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R50	1-216-095-00	METAL CHIP 82K 5% 1/10W	(EXCEPT G)
R50	1-216-097-00	METAL CHIP 100K 5% 1/10W	(G)
R51	1-216-095-00	METAL CHIP 82K 5% 1/10W	(EXCEPT G)
R51	1-216-097-00	METAL CHIP 100K 5% 1/10W	(G)
R52	1-216-097-00	METAL CHIP 100K 5% 1/10W	(AEP, G)
R53	1-216-097-00	METAL CHIP 100K 5% 1/10W	(AEP, G)
R54	1-216-097-00	METAL CHIP 100K 5% 1/10W	(AEP, G)
R55	1-216-073-00	METAL CHIP 10K 5% 1/10W	(AEP, G)
R56	1-216-001-00	METAL CHIP 10 5% 1/10W	(AEP, G)
R61	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R62	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R63	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R70	1-216-089-00	METAL CHIP 47K 5% 1/10W	(G)
R70	1-216-091-00	METAL CHIP 56K 5% 1/10W	(AEP, E, G)
R70	1-216-092-00	METAL GLAZE 62K 5% 1/10W	(US, CND)
R80	1-216-089-00	METAL CHIP 47K 5% 1/10W	(G)
R80	1-216-091-00	METAL CHIP 56K 5% 1/10W	(AEP, E, G)
R80	1-216-092-00	METAL GLAZE 62K 5% 1/10W	(US, CND)
R99	1-249-429-11	CARBON 10K 5% 1/4W	(US, CND, E)
R99	1-249-437-11	CARBON 47K 5% 1/4W	(AEP, G)
R101	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R102	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R103	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R104	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R105	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R106	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R107	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R108	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R109	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R110	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R111	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R112	1-216-041-00	METAL CHIP 470 5% 1/10W	
R113	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R114	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R115	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R117	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R118	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R119	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R120	1-218-345-11	METAL GLAZE 9.1K 5% 1/16W	
R121	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R122	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R123	1-216-041-00	METAL CHIP 470 5% 1/10W	
R124	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R127	1-216-072-00	METAL CHIP 9.1K 5% 1/10W	
R128	1-216-045-00	METAL CHIP 680 5% 1/10W	(G)
R128	1-216-047-00	METAL CHIP 820 5% 1/10W	(AEP, E, G)
R128	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	(US, CND)
R129	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R131	1-216-864-11	METAL CHIP 0 5% 1/16W	
R133	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R134	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R201	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R202	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R203	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R204	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R205	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R206	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R207	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R208	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R209	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R210	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R211	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R212	1-216-041-00	METAL CHIP 470 5% 1/10W	
R213	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R214	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R215	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R217	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R218	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R219	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R220	1-218-345-11	METAL GLAZE 9.1K 5% 1/16W	
R221	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R222	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R223	1-216-041-00	METAL CHIP 470 5% 1/10W	
R224	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R227	1-216-072-00	METAL CHIP 9.1K 5% 1/10W	
R228	1-216-045-00	METAL CHIP 680 5% 1/10W	(G)
R228	1-216-047-00	METAL CHIP 820 5% 1/10W	(AEP, E, G)
R228	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	(US, CND)
R229	1-249-429-11	CARBON 10K 5% 1/4W	
R231	1-216-864-11	METAL CHIP 0 5% 1/16W	
R233	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R234	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R301	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R302	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R303	1-216-109-00	METAL CHIP 330K 5% 1/10W	
R304	1-216-041-00	METAL CHIP 470 5% 1/10W	
R305	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R306	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R307	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R308	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R309	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R501	1-216-039-00	METAL CHIP 390 5% 1/10W	
R502	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R504	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R505	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R506	1-216-025-00	METAL CHIP 100 5% 1/10W	

MAIN

Ref. No.	Part No.	Description			Remark
R507	1-216-025-00	METAL CHIP	100	5%	1/10W
R508	1-216-089-00	METAL CHIP	47K	5%	1/10W
R509	1-216-841-11	METAL CHIP	47K	5%	1/16W
R510	1-216-841-11	METAL CHIP	47K	5%	1/16W
R511	1-216-049-00	METAL CHIP	1K	5%	1/10W
R512	1-216-089-00	METAL CHIP	47K	5%	1/10W
R513	1-216-049-00	METAL CHIP	1K	5%	1/10W
R514	1-216-049-00	METAL CHIP	1K	5%	1/10W
R515	1-216-833-11	METAL CHIP	10K	5%	1/16W
R516	1-216-837-11	METAL CHIP	22K	5%	1/16W
R517	1-216-833-11	METAL CHIP	10K	5%	1/16W
R518	1-216-081-00	METAL CHIP	22K	5%	1/10W
R519	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R520	1-216-837-11	METAL CHIP	22K	5%	1/16W
R521	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R522	1-216-841-11	METAL CHIP	47K	5%	1/16W
R523	1-216-841-11	METAL CHIP	47K	5%	1/16W
R524	1-216-845-11	METAL CHIP	100K	5%	1/16W
R525	1-216-845-11	METAL CHIP	100K	5%	1/16W
R526	1-216-821-11	METAL CHIP	1K	5%	1/16W
R527	1-216-049-00	METAL CHIP	1K	5%	1/10W
R528	1-216-841-11	METAL CHIP	47K	5%	1/16W
R529	1-216-841-11	METAL CHIP	47K	5%	1/16W
R530	1-216-841-11	METAL CHIP	47K	5%	1/16W
R531	1-216-049-00	METAL CHIP	1K	5%	1/10W
R532	1-216-841-11	METAL CHIP	47K	5%	1/16W
R533	1-216-049-00	METAL CHIP	1K	5%	1/10W
R534	1-216-097-00	METAL CHIP	100K	5%	1/10W
R535	1-216-097-00	METAL CHIP	100K	5%	1/10W
R536	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R537	1-216-097-00	METAL CHIP	100K	5%	1/10W
R538	1-216-097-00	METAL CHIP	100K	5%	1/10W
R539	1-216-081-00	METAL CHIP	22K	5%	1/10W
R540	1-216-081-00	METAL CHIP	22K	5%	1/10W
R541	1-216-073-00	METAL CHIP	10K	5%	1/10W
R542	1-216-073-00	METAL CHIP	10K	5%	1/10W
R543	1-216-073-00	METAL CHIP	10K	5%	1/10W
R544	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R545	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R546	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R547	1-216-073-00	METAL CHIP	10K	5%	1/10W
R548	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R549	1-216-073-00	METAL CHIP	10K	5%	1/10W
R550	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R551	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R552	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R553	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R554	1-216-097-00	METAL CHIP	100K	5%	1/10W
R555	1-216-025-00	METAL CHIP	100	5%	1/10W
R556	1-216-097-00	METAL CHIP	100K	5%	1/10W
R557	1-216-089-00	METAL CHIP	47K	5%	1/10W
R558	1-216-105-00	METAL CHIP	220K	5%	1/10W
R559	1-216-226-00	METAL GLAZE	15K	5%	1/8W
R560	1-216-089-00	METAL CHIP	47K	5%	1/10W
R561	1-216-218-00	METAL GLAZE	6.8K	5%	1/8W
R562	1-216-025-00	METAL CHIP	100	5%	1/10W
R563	1-216-097-00	METAL CHIP	100K	5%	1/10W
R564	1-216-073-00	METAL CHIP	10K	5%	1/10W
R565	1-216-049-00	METAL CHIP	1K	5%	1/10W
R566	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R567	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R568	1-216-089-00	METAL CHIP	47K	5%	1/10W
R569	1-216-851-11	METAL CHIP	330K	5%	1/16W
R570	1-216-097-00	METAL CHIP	100K	5%	1/10W
R571	1-216-226-00	METAL GLAZE	15K	5%	1/8W
R572	1-216-216-00	METAL GLAZE	5.6K	5%	1/8W
R573	1-216-097-00	METAL CHIP	100K	5%	1/10W
R574	1-216-295-00	METAL CHIP	0	5%	1/10W (US, CND, E)
R575	1-216-089-00	METAL CHIP	47K	5%	1/10W
R579	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R580	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R581	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R591	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R592	1-216-845-11	METAL CHIP	100K	5%	1/16W
R593	1-216-097-00	METAL CHIP	100K	5%	1/10W
R601	1-216-089-00	METAL CHIP	47K	5%	1/10W
R602	1-216-097-00	METAL CHIP	100K	5%	1/10W
R603	1-216-097-00	METAL CHIP	100K	5%	1/10W (AEP, E, G)
R604	1-216-845-11	METAL CHIP	100K	5%	1/16W (AEP, G)
R605	1-216-845-11	METAL CHIP	100K	5%	1/16W (AEP, G)
R606	1-216-845-11	METAL CHIP	100K	5%	1/16W (AEP, E, G)
R901	1-216-842-11	METAL CHIP	56K	5%	1/16W
R902	1-216-842-11	METAL CHIP	56K	5%	1/16W
R903	1-216-025-00	METAL CHIP	100	5%	1/10W
R904	1-216-025-00	METAL CHIP	100	5%	1/10W
R905	1-216-085-00	METAL CHIP	33K	5%	1/10W
R907	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R908	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R909	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R910	1-216-029-00	METAL CHIP	150	5%	1/10W
R912	1-216-032-00	METAL CHIP	200	5%	1/10W
R914	1-216-049-00	METAL CHIP	1K	5%	1/10W
R915	1-216-049-00	METAL CHIP	1K	5%	1/10W
R916	1-216-809-11	METAL CHIP	100	5%	1/16W
R917	1-216-815-11	METAL CHIP	330	5%	1/16W
R918	1-216-815-11	METAL CHIP	330	5%	1/16W
R919	1-216-821-11	METAL CHIP	1K	5%	1/16W
R920	1-216-025-00	METAL CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R928	1-216-049-00	METAL CHIP	1K	5%	1/10W
R929	1-216-049-00	METAL CHIP	1K	5%	1/10W
R930	1-216-103-00	METAL CHIP	180K	5%	1/10W
R941	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R942	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R943	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R982	1-216-864-11	METAL CHIP	0	5%	1/16W
R991	1-216-104-00	METAL CHIP	200K	5%	1/10W

< VARIABLE RESISTOR >

RV2	1-238-208-21	RES, ADJ, METAL GLAZE 220K
RV3	1-238-204-11	RES, ADJ, METAL GLAZE 10K
RV4	1-237-002-11	RES, ADJ, METAL GLAZE 2.2K
RV6	1-238-206-11	RES, ADJ, METAL GLAZE 47K
RV9	1-238-208-21	RES, ADJ, METAL GLAZE 220K

< SWITCH >

S10	1-572-272-11	SWITCH, SLIDE (DIVERSITY)
S501	1-572-272-11	SWITCH, SLIDE (POWER SELECT)
S601	1-572-272-11	SWITCH, SLIDE (9K/10K) (E)

< THERMISTOR >

TH501	1-809-148-11	THERMISTOR, POSITIVE
TH502	1-809-148-11	THERMISTOR, POSITIVE

< TUNER >

TU10	1-693-044-21	TUNER UNIT (FM/MW/LW) (AEP)
TU10	1-693-045-11	TUNER UNIT (FM/AM) (US, CND, E)

< VIBRATOR >

X1	1-567-848-11	VIBRATOR, CRYSTAL (7.2MHz)
X2	1-567-819-11	VIBRATOR, CERAMIC (4MHz) (AEP)
X3	1-579-242-11	VIBRATOR, CRYSTAL (4.332MHz) (AEP)
X501	1-567-776-21	VIBRATOR, CERAMIC (6.0MHz)
X502	1-579-709-11	VIBRATOR, CRYSTAL (32.768MHz)
X601	1-567-775-11	VIBRATOR, CERAMIC (4.19MHz)
X901	1-579-314-11	VIBRATOR, CRYSTAL (22.5792MHz)

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* A-3222-496-A MD BOARD, COMPLETE

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< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C501	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C502	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C504	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C505	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C506	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C507	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C508	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C509	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C511	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C512	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C513	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C514	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C515	1-162-979-11	CERAMIC CHIP	0.0027uF	10%	50V
C516	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C517	1-135-192-21	TANTAL. CHIP	0.47uF	10%	20V
C518	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C519	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C520	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C521	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C522	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C523	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C524	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C525	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C526	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C530	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C531	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C532	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C533	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C534	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C535	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C536	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C537	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C538	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C539	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C540	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C541	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C542	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C543	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C544	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C545	1-135-216-11	TANTALUM CHIP	10uF	20%	10V
C546	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C547	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C548	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C549	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C550	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C551	1-104-700-11	CERAMIC CHIP	0.027uF	10%	16V
C553	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C554	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C555	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C556	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C557	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C560	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C561	1-162-916-11	CERAMIC CHIP	12PF	5%	50V

Ref. No.	Part No.	Description	Remark
C562	1-162-916-11	CERAMIC CHIP 12PF	5% 50V
C563	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C565	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C566	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C567	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C570	1-162-912-11	CERAMIC CHIP 7PF	0.5PF 50V
C573	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C574	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C577	1-135-161-21	TANTALUM CHIP 22uF	10% 10V
C591	1-135-161-21	TANTALUM CHIP 22uF	10% 10V
C592	1-135-161-21	TANTALUM CHIP 22uF	10% 10V
		< CONNECTOR >	
CNP501	1-568-740-11	CONNECTOR, FPC (1.0MM)(ZIF)18P	
CNP502	1-580-438-21	CONNECTOR, FPC 4P	
CNP503	1-691-799-11	SOCKET, CONNECTOR 8P	
* CNP505	1-506-998-11	PIN, CONNECTOR (PC BOARD) 2P	
* CNP506	1-506-999-11	PIN, CONNECTOR (PC BOARD) 3P	
CNP507	1-573-773-11	SOCKET, CONNECTOR 25P	
		< DIODE >	
D502	8-719-988-62	DIODE 1SS355	
		< FERRITE BEAD >	
FB501	1-543-948-11	BEAD, FERRITE (CHIP)	
FB502	1-543-948-11	BEAD, FERRITE (CHIP)	
FB503	1-543-948-11	BEAD, FERRITE (CHIP)	
FB504	1-543-948-11	BEAD, FERRITE (CHIP)	
FB505	1-543-948-11	BEAD, FERRITE (CHIP)	
FB506	1-543-948-11	BEAD, FERRITE (CHIP)	
FB507	1-543-948-11	BEAD, FERRITE (CHIP)	
FB508	1-543-948-11	BEAD, FERRITE (CHIP)	
FB509	1-543-948-11	BEAD, FERRITE (CHIP)	
FB510	1-543-948-11	BEAD, FERRITE (CHIP)	
FB511	1-543-948-11	BEAD, FERRITE (CHIP)	
FB512	1-543-948-11	BEAD, FERRITE (CHIP)	
FB513	1-543-948-11	BEAD, FERRITE (CHIP)	
FB514	1-543-948-11	BEAD, FERRITE (CHIP)	
FB515	1-216-049-00	METAL CHIP 1K	5% 1/10W
FB516	1-543-948-11	BEAD, FERRITE (CHIP)	
FB517	1-543-948-11	BEAD, FERRITE (CHIP)	
FB518	1-543-948-11	BEAD, FERRITE (CHIP)	
FB519	1-543-948-11	BEAD, FERRITE (CHIP)	
FB520	1-543-948-11	BEAD, FERRITE (CHIP)	
FB521	1-543-948-11	BEAD, FERRITE (CHIP)	
FB522	1-543-948-11	BEAD, FERRITE (CHIP)	
FB523	1-543-948-11	BEAD, FERRITE (CHIP)	
FB601	1-543-948-11	BEAD, FERRITE (CHIP)	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC501	8-752-064-33	IC CXA1380N	
IC502	8-752-064-34	IC CXA1381R	
IC503	8-752-057-45	IC CXA1082BQ	
IC504	8-752-352-18	IC CXD2525R	
IC505	8-752-354-57	IC CXD2526Q	
IC506	8-759-057-47	IC MS514400L-80VC	
IC507	8-752-355-96	IC CXD2527R	
IC510	8-752-355-96	IC CXD2527R	
IC513	8-759-071-62	IC BA6298FP	
IC514	- - -	IC uPD78138	
IC515	8-759-234-77	IC TC4S66F	
IC516	8-759-234-77	IC TC4S66F	
IC517	8-759-234-77	IC TC4S66F	
IC519	8-759-040-83	IC BA6287F	
IC523	8-759-234-77	IC TC4S66F	
		< COIL >	
L501	1-410-204-31	INDUCTOR CHIP 10uH	
L502	1-410-375-11	INDUCTOR CHIP 3.3uH	
		< TRANSISTOR >	
Q501	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q504	8-729-900-53	TRANSISTOR DTC114EK	
Q505	8-729-106-60	TRANSISTOR 2SB1115A-YQ	
Q506	8-729-900-53	TRANSISTOR DTC114EK	
Q507	8-729-900-53	TRANSISTOR DTC114EK	
Q508	8-729-901-04	TRANSISTOR DTA114EK	
Q512	8-729-900-53	TRANSISTOR DTC114EK	
Q513	8-729-900-53	TRANSISTOR DTC114EK	
		< RESISTOR >	
R501	1-216-845-11	METAL CHIP 100K	5% 1/16W
R502	1-216-857-11	METAL CHIP 1M	5% 1/16W
R503	1-220-372-11	METAL GLAZE 200K	5% 1/16W
R504	1-220-372-11	METAL GLAZE 200K	5% 1/16W
R505	1-216-857-11	METAL CHIP 1M	5% 1/16W
R506	1-218-448-11	METAL GLAZE 430K	5% 1/16W
R512	1-218-347-11	METAL GLAZE 91K	5% 1/16W
R513	1-216-845-11	METAL CHIP 100K	5% 1/16W
R514	1-216-833-11	METAL CHIP 10K	5% 1/16W
R515	1-216-857-11	METAL CHIP 1M	5% 1/16W
R516	1-216-827-11	METAL CHIP 3.3K	5% 1/16W
R517	1-216-827-11	METAL CHIP 3.3K	5% 1/16W
R518	1-216-849-11	METAL CHIP 220K	5% 1/16W
R519	1-216-813-11	METAL CHIP 220	5% 1/16W
R522	1-216-800-11	METAL GLAZE 18	5% 1/16W
R523	1-216-845-11	METAL CHIP 100K	5% 1/16W

Ref. No.	Part No.	Description	Remark
R525	1-218-331-11	METAL GLAZE 51K 5% 1/16W	
R529	1-218-272-11	METAL GLAZE 5.1K 5% 1/16W	
R530	1-216-993-11	METAL GLAZE 2.4K 5% 1/16W	
R531	1-218-344-11	METAL GLAZE 7.5K 5% 1/16W	
R532	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R533	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R534	1-216-809-11	METAL CHIP 100 5% 1/16W	
R535	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R536	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R537	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R538	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R539	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R540	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R541	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R544	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R545	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R546	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R547	1-216-846-11	METAL CHIP 120K 5% 1/16W	
R548	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R549	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R550	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R551	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R552	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R553	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R554	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R555	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R556	1-218-273-11	METAL GLAZE 510K 5% 1/16W	
R559	1-218-708-11	METAL CHIP 4.7K 0.50% 1/16W	
R560	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R561	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R562	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R563	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R565	1-218-331-11	METAL GLAZE 51K 5% 1/16W	
R568	1-218-272-11	METAL CHIP 5.1K 0.50% 1/16W	
R569	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R570	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R572	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R573	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R574	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R576	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R577	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R578	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R579	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R580	1-216-809-11	METAL CHIP 100 5% 1/16W	
R581	1-216-809-11	METAL CHIP 100 5% 1/16W	
R583	1-216-809-11	METAL CHIP 100 5% 1/16W	
R585	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R586	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R587	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R588	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R589	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R590	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R591	1-216-033-00	METAL CHIP 220 5% 1/10W	
R592	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R596	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R599	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R600	1-216-033-00	METAL CHIP 220 5% 1/10W	
R601	1-216-821-11	METAL CHIP 1K 5% 1/16W	
		< VARIABLE RESISTOR >	
RV510	1-238-091-11	RES, ADJ, CERMET 22K	
RV517	1-238-091-11	RES, ADJ, CERMET 22K	
RV518	1-238-091-11	RES, ADJ, CERMET 22K	
RV521	1-238-091-11	RES, ADJ, CERMET 22K	
RV528	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV529	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV542	1-238-089-11	RES, ADJ, CERMET 4.7K	
RV543	1-238-089-11	RES, ADJ, CERMET 4.7K	
		< THERMISTOR >	
TH501	1-808-656-11	THERMISTOR	
TH502	1-808-656-11	THERMISTOR	
		< VIBRATOR >	
X501	1-579-876-21	VIBRATOR, CRYSTAL (22MHz)	
X502	1-579-871-21	VIBRATOR, CRYSTAL (55MHz)	
X503	1-579-875-21	VIBRATOR, CRYSTAL (12MHz)	
**			
*	1-645-958-12	POWER BOARD ************	
		< CAPACITOR >	
C801	1-104-633-11	ELECT 180uF 20% 16V	
C802	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C803	1-104-633-11	ELECT 180uF 20% 16V	
C804	1-126-926-11	ELECT 1000uF 20% 10V	
C805	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
		< CONNECTOR >	
* CN801	1-573-272-11	PIN, CONNECTOR 2P	
* CN802	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P	
* CN803	1-573-274-11	PIN, CONNECTOR 4P	
		< DIODE >	
D801	8-719-210-33	DIODE EC10DS2	

POWER RELAY

Ref. No.	Part No.	Description	Remark
		< IC >	
IC801	8-759-701-75	IC NJM7805FA	
IC802	8-759-982-07	IC NJM7808FA	
		< TRANSISTOR >	
Q801	8-729-105-29	TRANSISTOR 2SA1385	
Q802	8-729-920-21	TRANSISTOR DTC314TKH04	
		< RESISTOR >	
R801	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R802	1-216-206-00	METAL GLAZE 2.2K 5% 1/8W	
R803	1-216-206-00	METAL GLAZE 2.2K 5% 1/8W	
R804	1-216-206-00	METAL GLAZE 2.2K 5% 1/8W	

****

Ref. No.	Part No.	Description	Remark
*	1-646-323-11	RELAY BOARD ************	
		< CONNECTOR >	
CNP508	1-568-164-11	CONNECTOR, FPC (1.0MM) (ZIF)8P	
* CNP509	1-506-998-11	PIN, CONNECTOR (PC BOARD) 2P	
* CNP510	1-506-998-11	PIN, CONNECTOR (PC BOARD) 2P	
		< SWITCH >	
SW631	1-572-467-31	SWITCH, PUSH (1 KEY) (INNER L/MIT)	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *************	
8	1-690-946-11	CORD (WITH CONNECTOR) (ANT)	
9	1-696-624-11	CORD (WITH CONNECTOR) (AUDIO)	
11	1-696-623-11	CORD (WITH CONNECTOR)	
16	1-646-321-11	PC BOARD, FLEXIBLE (E)	
16	1-646-321-21	PC BOARD, FLEXIBLE (US,CND,AEP,G)	
65	1-466-812-11	KEY BOARD UNIT	
⚠272	8-848-271-01	DEVICE,MINIATURE DISK KMS-150A	
276	1-645-960-11	PC BOARD, SENSOR FLEXIBLE	
508	1-466-817-11	ADAPTOR, OPTICAL	
* CNP504	1-563-470-11	HOUSING, CONNECTOR 2P	
F1	1-532-419-11	FUSE, GLASS TUBE 3.15A	
F2	1-532-414-11	FUSE, GLASS TUBE 1A	
FAN1	1-541-973-11	MOTOR (FAN)	
M901	X-3365-848-2	SPINDLE MOTOR ASSY	
M902	X-3365-845-1	SLED MOTOR ASSY	
M903	X-3365-849-1	LOADING MOTOR ASSY	
S1	1-570-771-11	SWITCH	

****

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS ******************************	
	X-3365-862-1	CASE ASSY	
	1-466-818-11	REMOTE COMMANDER (RM-X27) (AEP,G)	
	1-466-818-31	REMOTE COMMANDER (RM-X27) (US,CND,E)	
*	3-355-207-01	CARDBOARD (E)	
*	3-385-591-01	INDIVIDUAL CARTON (US,CND,E)	
*	3-385-593-01	CUSHION (UPPER)	
*	3-385-594-01	CUSHION (LOWER)	
*	3-385-915-01	INDIVIDUAL CARTON (AEP,G)	
	3-756-009-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, ITALIAN, DUTCH) (AEP, G)	
	3-756-009-21	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (US, CND)	
	3-756-009-41	MANUAL, INSTRUCTION (SPANISH, SWEDISH, PORTUGUESE) (AEP)	
	3-756-009-51	MANUAL, INSTRUCTION (ENGLISH, SPANISH, CHINESE) (E)	
	3-756-010-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH, GERMAN, ITALIAN, DUTCH) (AEP, G)	
	3-756-010-21	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH) (US,CND)	
	3-756-010-41	MANUAL, INSTRUCTION, INSTALL (SPANISH, SWEDISH, PORTUGUESE) (AEP)	
	3-756-010-51	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH, CHINESE) (E)	

****

****

HARDWARE LIST

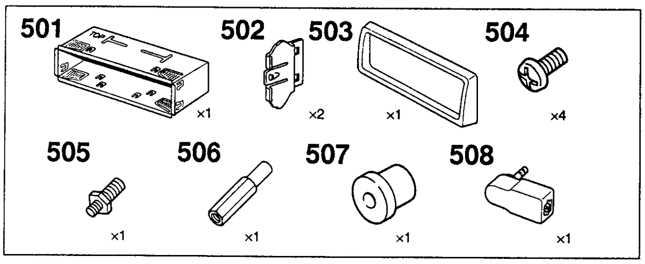
****

#1	7-621-773-95	SCREW +PTT 2.6X6 (S)
#2	7-621-772-10	SCREW +B 2X4
#3	7-621-773-86	SCREW +PTT 2.6X4 (S)
#4	7-627-853-57	PRECISION SCREW +P 2X5 TYPE3
#5	7-621-770-67	SCREW +PTT 2.6X6 (S)
#6	7-621-773-87	SCREW +PTT 2.6X10 (S)
#7	7-621-775-78	SCREW +P 2.6X14
#8	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT
#11	7-627-852-68	SCREW,PRECISION +P 1.7X6 TYPE3
#12	7-621-555-10	SCREW +K 2X3
#13	7-621-772-08	SCREW +B 2X3
#14	7-624-101-01	STOP RING 1.2 (E TYPE)
#15	7-627-551-58	SCREW,PRECISION +P 1.4X3
#16	7-627-552-87	SCREW,PRECISION +P 1.7X2.2
#17	7-627-554-07	SCREW,PRECISION +P 2X2.2
#18	7-627-852-28	+P 1.7X3
#19	7-627-852-37	PRECISION SCREW +P1.7X1.8TYPE3
#20	7-627-850-27	SCREW,PRECISION +P 1.4X3

****

• MOUNTING HARDWARE

Ref. No.	Part No.	Description	Remark
501	3-323-219-01	FRAME, FITTING	
502	3-374-200-01	SPRING (FITTING)	
503	3-385-928-01	COLLAR	
504	3-329-814-01	SCREW (M4X6), SPECIAL PAN (+)	
505	3-323-209-01	BOLT (4-5), STUD	
506	3-323-210-01	ADJUSTOR, STUD BOLT	
507	3-349-410-01	BUSHING	
508	1-466-817-11	ADAPTOR, OPTICAL	


501
×1
502
×2
503
×1
504
×4
505
×1
506
×1
507
×1
508
×1

English
92L0579-1
Printed in Japan

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Sony Corporation
Mobile Electronics Group

Published by Audio Corporate Planning Group

MDX-U1/U1RDS

SONY

SERVICE MANUAL

US Model
Canadian Model
E Model
MDX-U1
AEP Model
MDX-U1RDS

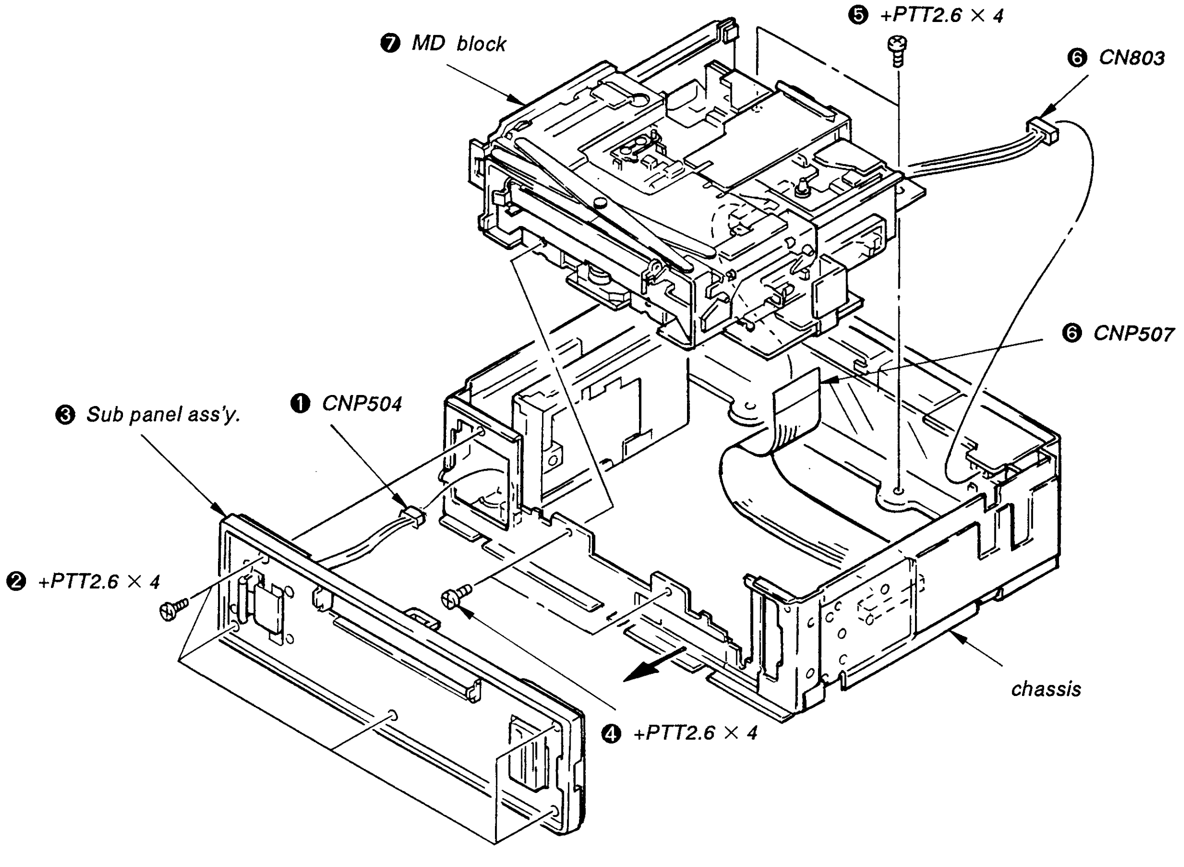
SUPPLEMENT-1

File this supplement with the service manual.

Subject:
- **Disassembly.**
- **Adjustments.**
- **Keyboard unit Diagram.**
- **Keyboard unit Electrical Parts List.**

SECTION 1
DISASSEMBLY

MD BLOCK



❼ MD block
❺ +PTT2.6 × 4
❻ CN803
❻ CNP507
❸ Sub panel ass'y.
❶ CNP504
❷ +PTT2.6 × 4
❹ +PTT2.6 × 4
chassis

SECTION 2
ADJUSTMENTS

2-1. TEST MODE

Make the Test Mode.

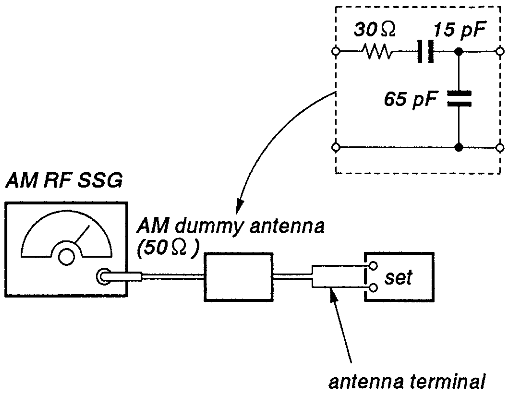
1. Set the “OFF” condition.
2. Push 4 button.
3. Push 5 button.
4. Press 1 button for two seconds.
   Then the display indicates 4 patterns and stops,
   The test mode is set.

2-2. TUNER SECTION

AM (MW) Auto Scan/Stop Level Adjustment

Setting:

BAND switch : AM or MW

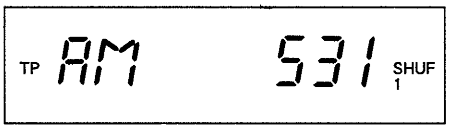

30Ω
15 pF
65 pF
AM RF SSG
AM dummy antenna
(50Ω)
set
antenna terminal

Frequency: *1,000 kHz (US/Canadian/E)*
999 kHz (AEP/UK/E/G)
Output level: *30 dB μV (31.8 μV)*

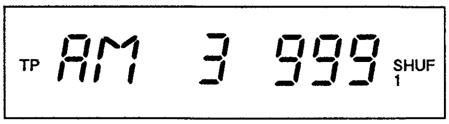
Procedure:

1. Set to the test mode. (See left.)
2. Push the tuner button and set to AM (MW).

Display window (EX.: 2 band model 9 kHz step when 10 kHz step; 530)


TP
AM
531
SHUF
1

3. Push the preset 3 button.


TP
AM
3
999
SHUF
1

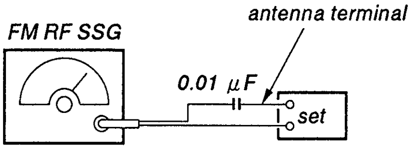
(EX.: 2 band model 9 kHz step, when 10 kHz step; 1000)

4. Adjust with the volume on TU10 so that the “AM (or MW)” indication turns to “AM0 (or MW0)” indication on the display window.

FM Auto Scan/Stop Level Adjustment

Setting:

BAND switch : FM

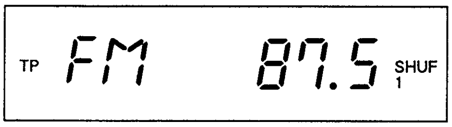

antenna terminal
FM RF SSG
0.01 μF
set

Carrier frequency: 97.9 MHz (US/Canadian)
98.0 MHz (AEP/UK/E/G)
Output level: 25 dB (18 μV) (Except RDS model)
22 dB (13 μV) (RDS model)
Mode: mono: unmodulated

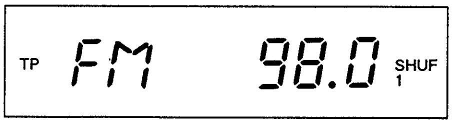
Procedure:

1. Set to the test mode. (See page left.)
2. Push the tuner button and set to FM.

Display window (EX.: AEP, UK, E, G model.
US, Canadian model; 87.9)


TP
FM
87.5
SHUF
1

3. Push the preset $\boxed{3}$ button.


TP
FM
98.0
SHUF
1

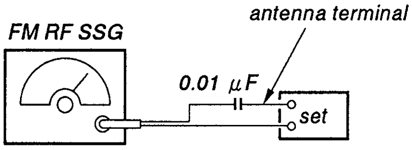
(EX.: AEP, UK, E, G model.
US, Canadian model; 97.9)

4. Adjust with the volume on TU10 so that the “FM” indication turns to “FM0” indication on the display window.

S Meter (35dB) Adjustment

Setting:

BAND switch : FM


antenna terminal
FM RF SSG
0.01 μF
set

Carrier frequency: 97.9 MHz (US/Canadian)
98.0 MHz (AEP/UK/E/G)
Output level: 35 dB (56.2 μV) (Except RDS model)
32 dB (39.8 μV) (RDS model)
Mode: 1kHz: unmodulated

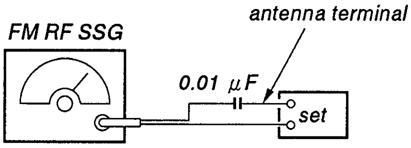
Procedure:

1. Adjust with RV9 so that the voltage on TP S meter (35dB)goes 2.0 ± 0.1V(except RDS model), Vref × 0.375 $\pm^{0.2}_{0}$ V(RDS model).
   Vref :Voltage on Pin (58) of IC601.

S Meter (70dB) Adjustment

Setting:

BAND switch : FM


antenna terminal
FM RF SSG
0.01 μF
set

Carrier frequency: 97.9 MHz (US/Canadian)
98.0 MHz (AEP/UK/E/G)
Output level: 70 dB (3.15mV)
Mode: 1kHz 75 deviation

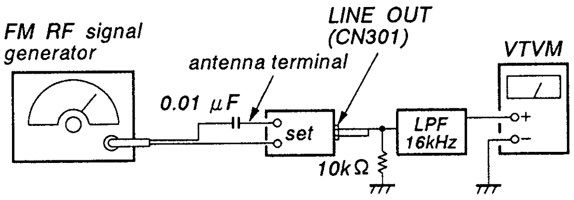
Procedure:

1. Adjust with RV2 so that the voltage on TP S meter (70dB) goes 4.5 $\pm^{0.2}_{0.5}$V.

FM Stereo Separation (4dB) Adjustment

Setting:

BAND switch : FM


FM RF signal generator
LINE OUT (CN301)
antenna terminal
VTVM
0.01 μF
set
LPF 16kHz
10kΩ

Carrier frequency: *97.9 MHz (US/Canadian)*
98.0 MHz (AEP/UK/E/G)
Output level: *40 dB (100 μV)*
Mode: *stereo*
Modulation: *main; 1 kHz, 33.75 kHz deviation (45%)*
sub; 1 kHz, 33.75 kHz deviation (45%)
19 kHz pilot; 7.5 kHz deviation (10%)

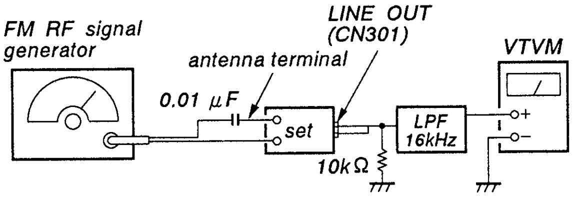
Procedure:

1. Adjust with RV6 so that the LINE OUT level goes 9 ± 1dB.

FM Stereo Separation (70dB) Adjustment

Setting:

BAND switch : FM


FM RF signal generator
LINE OUT (CN301)
antenna terminal
VTVM
0.01 μF
set
LPF 16kHz
10kΩ

Carrier frequency: *97.9 MHz (US/Canadian)*
98.0 MHz (AEP/UK/E/G)
Output level: *70 dB (3.15mV)*
Mode: *stereo*
Modulation: *main; 1 kHz, 33.75 kHz deviation (45%)*
sub; 1 kHz, 33.75 kHz deviation (45%)
19 kHz pilot; 7.5 kHz deviation (10%)

Procedure:

1. Adjust with RV4 to the best separation

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV2 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV2 for minimum reading.

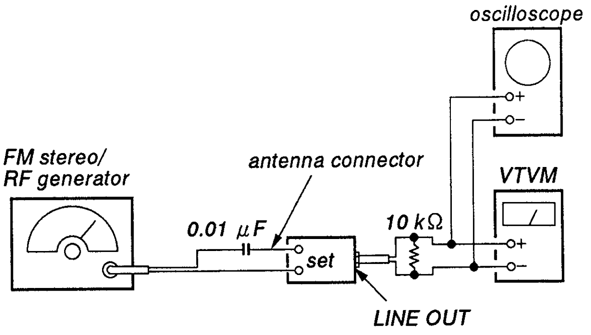
L-CH Stereo separation: Ⓐ − Ⓑ
R-CH Stereo separation: Ⓒ − Ⓓ
The separations of both channels should be equal.
Adjustment Value : − 28dB

Adjustment Location: MAIN board

FM Carrier Leak Adjustment

Setting:

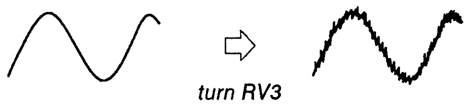
BAND switch : FM


oscilloscope
FM stereo/ RF generator
antenna connector
VTVM
0.01 μF
10 kΩ
set
LINE OUT

Carrier frequency: *97.9 MHz (US/Canadian)*
98.0 MHz (AEP/UK/E/G)
Output level: *70 dB μV (3.15 mV)*
Modulation : *main; 1 kHz, 33.75 kHz deviation*
sub; 1 kHz, 33.75 kHz deviation
19 kHz pilot; 7.5 kHz deviation

Procedure:

1. Check the waveform on the oscilloscope screen becomes as follows when turning RV3.



2. Set the modulation 19 kHz pilot only.
3. Adjust with RV3 so that the 19 kHz signal becomes minimum on both channels L and R.

2-3. MD SECTION

Preparation before Starting Adjustments

1. Put the unit in TEST mode. (See page 2.)
2. Press $\boxed{\text{MD}}$, and the illumination turns on.
   Press $\boxed{4}$ (STOP) to put the unit in STOP mode.
   Under this condition, the functions of each key are set as follows:
   $\boxed{1}$ = FOCUS ON
   $\boxed{2}$ = TRACKING ON
   $\boxed{3}$ = LASER ON
   $\boxed{4}$ = STOP
   $\boxed{\blacktriangleleft\blacktriangleleft \text{ DISC } \blacktriangleright\blacktriangleright}$ =SLED RVS/FWD
   $\boxed{\blacktriangleleft\blacktriangleleft \text{ AMS } \blacktriangleright\blacktriangleright}$ =AMS ± (Only for PLAY mode)
   $\boxed{\text{OFF}}$=RESET (REST MODE RELEASE)
3. Set the DISC in position. "SHUF 1" is lit. Be careful with automatic setting of "VOL MAX PLAY".
4. Setting $\boxed{1}$ → $\boxed{2}$ put the unit into PLAY mode without reproducing sound.
   In normal (with sound reproduced)·PLAY mode, the data is retrieved intermittently. In this (muted) PLAY mode however, an eye pattern of continuous data retrieval can be observed on an oscilloscope. If sound reproduction is desired, setting $\boxed{\text{FM}}$ → $\boxed{\text{MD}}$ plays back a sound of "VOL MAX PLAY".
5. Adjustments shall be carried out in TEST mode in order of the adjustment sections that follow this preparation section.

Laser Power Adjustment

There are two methods as follows:

- Method by using a laser power wattmeter
  Press $\boxed{3}$ to turn on the laser diode.
  Adjust the position of the optical block with the $\boxed{\blacktriangleleft\blacktriangleleft \text{ DISC } \blacktriangleright\blacktriangleright}$ key.
  Adjust RV529 for a laser output of 820 ± 5 μW at 780 nm.
- Method by observing an eye pattern
  Set a premaster DISC in position.
  Put the unit in PLAY mode.
  Adjust RV529 for an eye pattern of 1.5 Vp-p.

FOK OFFSET Adjustment

Connect a VOM between pin ① (VR) and pin ㉝ (ABCD) of IC502.
Press $\boxed{3}$ (LASER ON), and adjust RV510 for − 200 ± 50 mV on the VOM.
Press $\boxed{4}$ (STOP).

TRACKING OFFSET Adjustment

Connect the VOM between pin ① (VR) and pin ㉔ (TE) of IC502.
Press $\boxed{3}$ (LASER ON), and adjust RV521 for 0 ± 50 mV on the VOM.
Press $\boxed{4}$ (STOP).

E-F BALANCE Adjustment

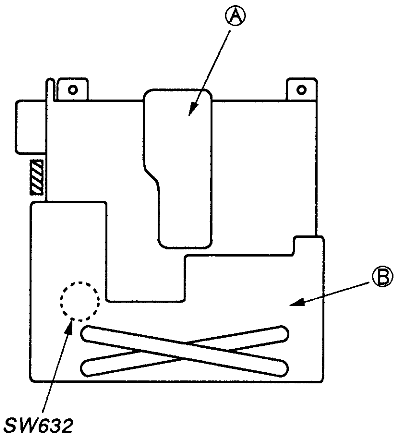
Connect the VOM between pin ① (VR) and pin ㉔ (TE) of IC502.Set the premaster DISC in position.
Press $\boxed{4}$ (STOP) before putting the unit in PLAY mode.
Move the optical block once to the most inside of the DISC with $\boxed{\blacktriangleleft\blacktriangleleft \text{ DISC}}$, and then press $\boxed{\text{DISC } \blacktriangleright\blacktriangleright}$ once.
Press $\boxed{1}$ (FOCUS ON), and adjust RV528 for 0 ± 100 mV on the VOM.
(Use a digital VOM for reading a level within 0 ± 100 mV.)
Remove the premaster DISC from the unit.

FOCUS BIAS Adjustment for Record/Playback Type DISC

Connect the VOM between pin ① (VR) and pin ㉒ (FE) of IC502.
Press $\boxed{3}$ (LASER ON), and adjust RV518 for −200 ± 10 mV on VOM.
Press $\boxed{4}$ (STOP).

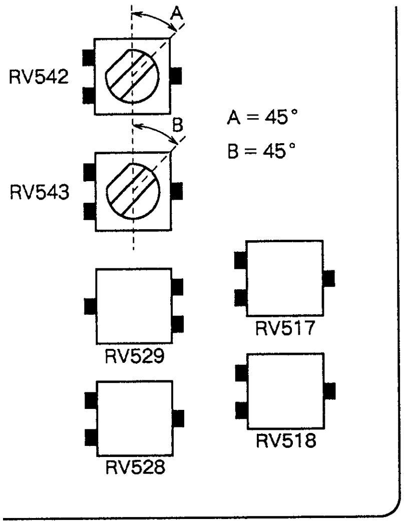
FOCUS BIAS Adjustment for Playback Only Type DISC

Connect the VOM between pin ① (VR) and pin ㉒ (FE) of IC502.
Set the unit in quasi DISC loaded condition without a DISC, by pushing loader (R) Ⓑ while holding stopper Ⓐ lifted slightly upward.
Press $\boxed{4}$ (STOP) before the unit goes into EJECT mode with its display indicating an error condition.
Press $\boxed{3}$ (LASER ON) while holding $\boxed{\text{SW632}}$ (DISC type detector) pressed with the finger.
Adjust RV517 for 0 ± 10 mV on the VOM.
Press $\boxed{4}$ (STOP).

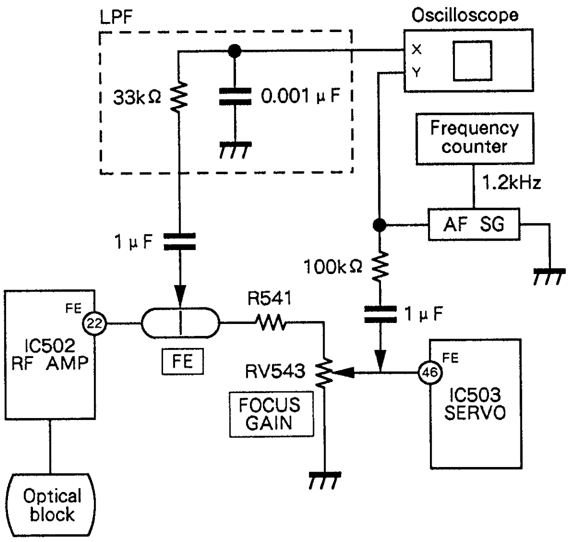


FOCUS/TRACKING GAIN Adjustments

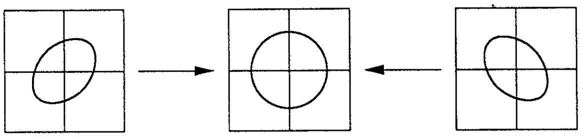
Set both RV542 and RV543 where turned clockwise by 45 degrees, as shown below.


A
RV542
B
RV543
A = 45°
B = 45°
RV529
RV517
RV528
RV518

1. FOCUS GAIN Adjustment


LPF
Oscilloscope
X
Y
33kΩ
0.001 μF
Frequency counter
1.2kHz
AF SG
1 μF
100kΩ
R541
1 μF
FE
22
IC502
RF AMP
FE
RV543
FOCUS GAIN
FE
46
IC503
SERVO
Optical block

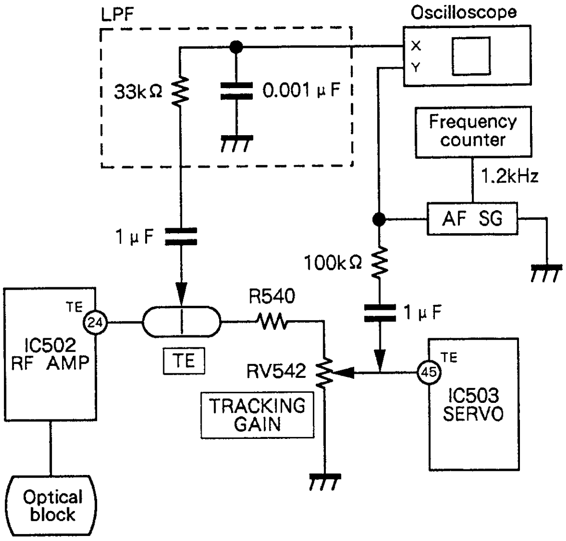
(Waveforms observed on the oscilloscope)



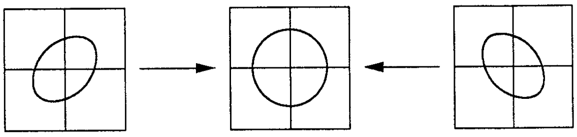
(a) Gain is too low. *(b) Gain is appropriate.* *(a) Gain is too high.*

Play back an MO disk, and then adjust RV543 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.

2. TRACKING GAIN Adjustment


LPF
Oscilloscope
X
Y
33kΩ
0.001 μF
Frequency counter
1.2kHz
AF SG
1 μF
100kΩ
R540
1 μF
TE
24
IC502
RF AMP
TE
RV542
TRACKING GAIN
TE
45
IC503
SERVO
Optical block

(Waveforms observed on the oscilloscope)



(a) Gain is too low. *(b) Gain is appropriate.* *(a) Gain is too high.*

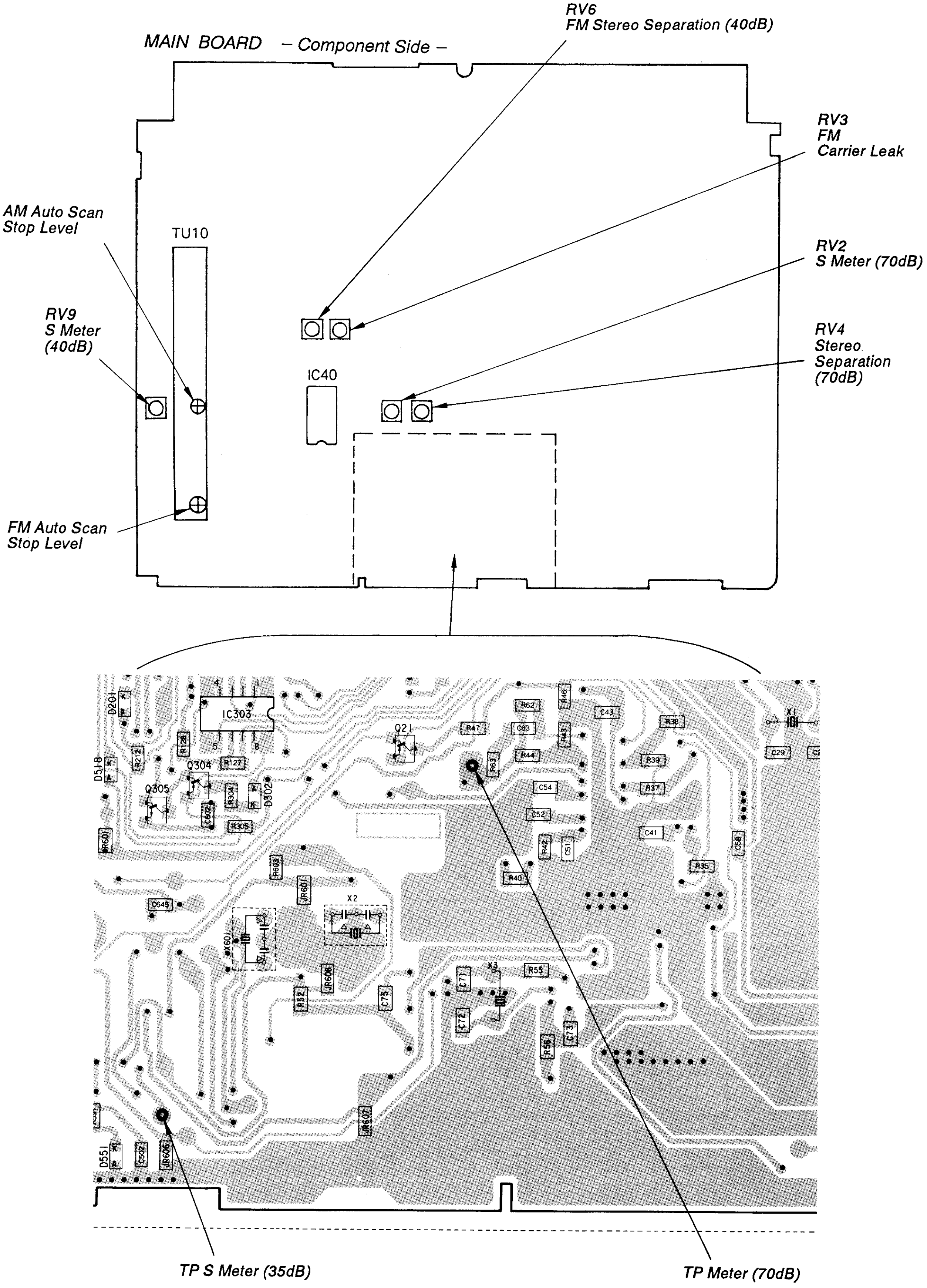
Play back the MO disk, and then adjust RV542 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.

Description of ERROR Indication in MD Mode

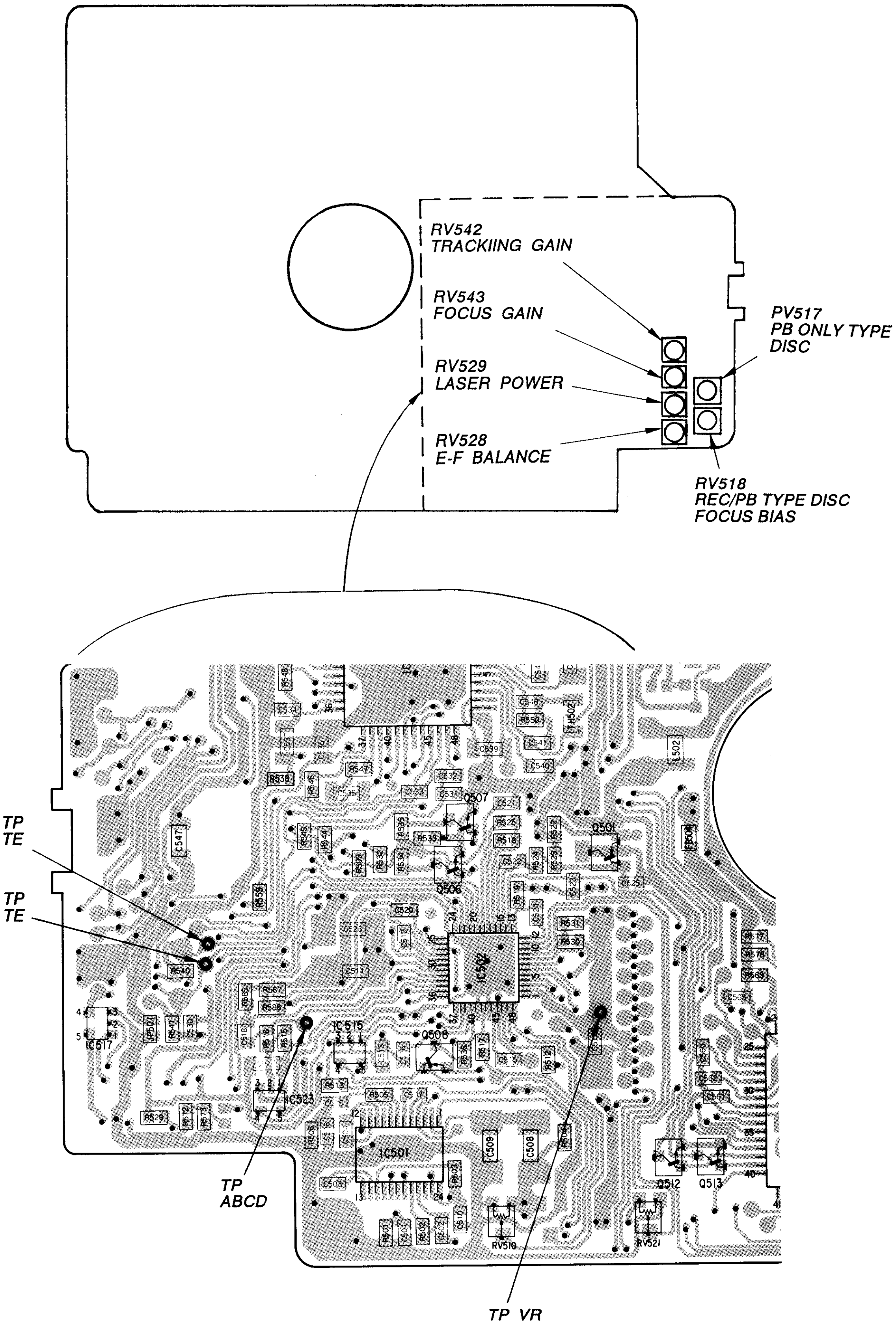
A functional error of the unit is displayed as "ERR – n1n2n3n4".
Items indicated with "n3" and "n4" mean nothing in particular.
The list below shows the error items indicated with "n1" and "n2".

n1	n2	Description
1	*	● Servo control error
	1	● Focusing error → • Focusing is not achieved in MD PLAY mode. • A condition of FOK = "L" continues for 80 ms in MD PLAY mode, and all servo circuits are deactivated. Focusing is failed again after AGC is turned off.
	2	● GFS or LOCK error → • GFS is not activated in four seconds after setting to CLV-A with focusing achieved successfully. Or, focusing is deactivated once after that time, but it is not achieved again. • When a condition of GFS = "L" continues for 2 seconds in MD PLAY mode, CLV/TRACKING/SLED servo loops are set open once. Then, the servo loops are closed again after 600 ms from that time, by moving the sled for 50 ms for the MO DISK (no movement of the sled for the premaster DISK). However, GFS is not activated in four seconds. • When the servo circuits are not locked for 100 ms, TRACKING/SLED servo loops are set open once. Then, the servo loops are closed again, waiting for GFS to be activated. However, GFS is not activated in four seconds from that time.
	3	● SUB-Q error → When SUB-Q (for the premaster DISC) or ADIP (for the MO DISC) cannot be retrieved for four seconds, all servo circuits are deactivated once. After 600 ms from that time, the focusing servo circuit is activated. However, the focusing is not achieved.
	4	● SYNC error → When SYNC is not detected for 3.5 seconds, TRACKING servo circuit is deactivated once, and the sled is moved to the inside for 150 ms. Then, TRACK/SLED servo circuits are activated again. However, focusing is not achieved this time.
	F	● NG DISC → A HYBRID DISC is loaded.
D	*	● HIGH TEMPERATURE error
F	*	● Control error on the mechanisms of the deck.
	1	● EJECT time-out error When time for loading (7 seconds allowed as maximum) is over, eject operation is started. However, time for eject operation is also over (5 seconds allowed as maximum).
	8	● LOAD time-out error When time for eject operation (5 seconds allowed as maximum) is over, loading is started. However, time for loading is also over (7 seconds allowed as maximum).
	9	● Repetitive time-out error When time for eject operation (5 seconds allowed as maximum) is over, loading is started. But, the unit repeats eject operation. However, eject operation failed finally after the unit is tried eject operation three times (the DISC is chucked in this case).

- **Adjusting Parts Location**


MAIN BOARD – Component Side –
RV6
FM Stereo Separation (40dB)
RV3
FM
Carrier Leak
RV2
S Meter (70dB)
RV4
Stereo
Separation
(70dB)
AM Auto Scan
Stop Level
TU10
RV9
S Meter
(40dB)
IC40
FM Auto Scan
Stop Level
D201
IC303
Q21
R62
R46
C43
R47
C63
R43
R38
X1
C29
R63
R44
R39
R37
C54
C52
C41
R42
C51
C58
R35
R40
R212
R128
R127
Q304
Q305
R304
D302
C602
R305
D518
JR601
R603
JR601
C645
X2
X601
JR608
R52
C75
C71
C72
X3
R55
R56
C73
JR607
D551
C502
JR606
TP S Meter (35dB)
TP Meter (70dB)

MD SERVO BOARD – Component Side –


RV542
TRACKIING GAIN
RV543
FOCUS GAIN
RV529
LASER POWER
RV528
E-F BALANCE
PV517
PB ONLY TYPE DISC
RV518
REC/PB TYPE DISC FOCUS BIAS
TP TE
TP TE
TP ABCD
TP VR
IC502
IC501
IC515
IC517
IC523
Q501
Q506
Q507
Q508
Q512
Q513
RV510
RV521
L502
TH502
JP501

SECTION 3
KEYBOARD UNIIT DIAGRAMS

- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D1	B-10	LED14	I-4
D2	C-10	LED15	I-6
		LED16	I-7
IC1	B-5	LED17	I-8
IC2	G-11	LED18	I-10
		LED19	I-10
LED1	G-13	LED20	I-12
LED2	H-13	LED21	G-10
LED3	I-13	LED22	G-11
LED4	F-2	LED23	G-11
LED5	F-4	LED24	H-10
LED6	F-10	LED25	H-11
LED7	G-13	LED26	H-11
LED8	F-11	LED27	F-3
LED9	G-1		
LED10	H-1	TR1	B-8
LED11	I-1	TR2	C-10
LED12	I-2	TR3	D-10
LED13	I-3		

Note on Printed Wiring Board:

- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

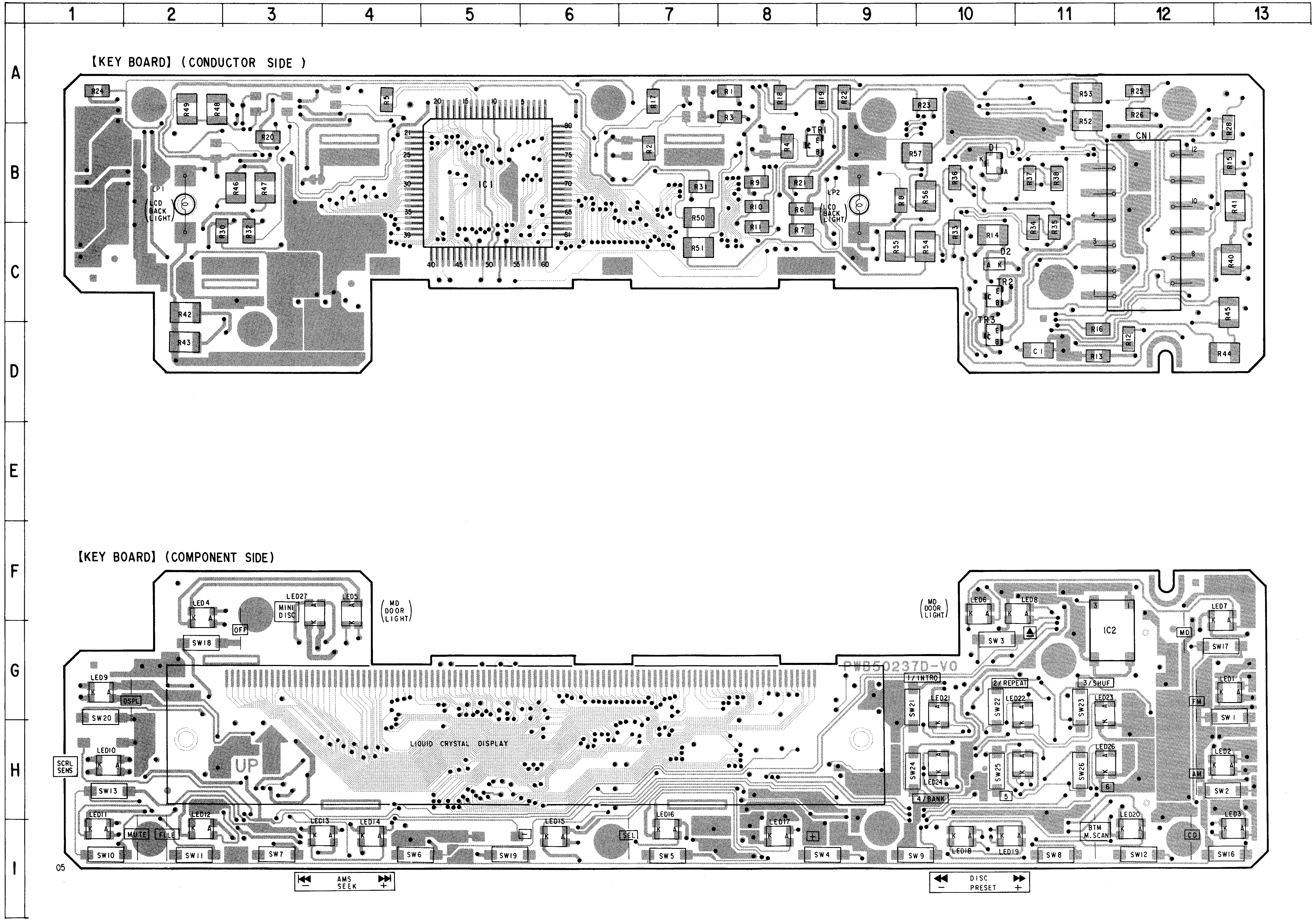
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

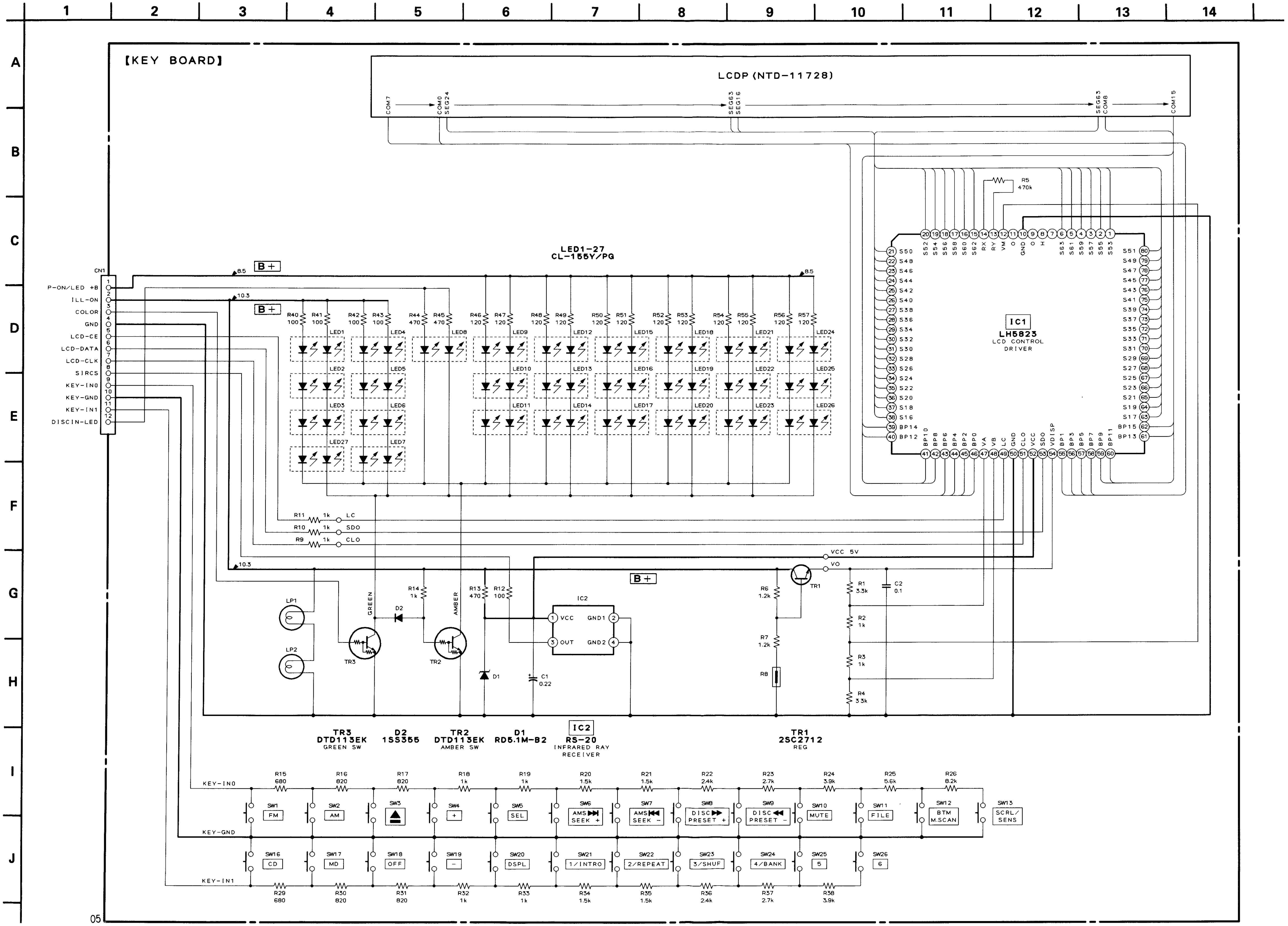
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- B+ : B + Line.
- ☐ : panel designation.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.

3-1. PRINTED WIRING BOARD


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
【KEY BOARD】(CONDUCTOR SIDE)
IC1
LP1
LCD BACK LIGHT
LP2
LCD BACK LIGHT
TR1
TR2
TR3
D1
D2
CN1
C1
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R28
R30
R31
R33
R34
R35
R36
R37
R38
R39
R40
R41
R42
R43
R44
R45
R46
R47
R48
R49
R50
R51
R52
R53
R54
R55
R56
R57
【KEY BOARD】(COMPONENT SIDE)
LED1
LED2
LED3
LED4
LED5
LED6
LED7
LED8
LED9
LED10
LED11
LED12
LED13
LED14
LED15
LED16
LED17
LED18
LED19
LED20
LED21
LED22
LED23
LED24
LED26
LED27
IC2
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
SW16
SW17
SW18
SW19
SW20
SW21
SW22
SW23
SW24
SW25
SW26
MINI DISC
OFF
MD DOOR LIGHT
MD DOOR LIGHT
DSPL
SCRL SENS
UP
LIQUID CRYSTAL DISPLAY
PWB50237D-V0
1/INTRO
2/REPEAT
3/SHUF
4/BANK
5
6
MUTE
FILE
SEL
MD
FM
AM
CD
BTM M.SCAN
05
AMS SEEK
DISC PRESET

3-2. SCHEMATIC DIAGRAM


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
【KEY BOARD】
LCDP (NTD-11728)
COM7
COM0
SEG24
SEG63
SEG16
SEG63
COM8
COM15
R5 470k
IC1
LH5823
LCD CONTROL DRIVER
S50 S48 S46 S44 S42 S40 S38 S36 S34 S32 S30 S28 S26 S24 S22 S20 S18 S16 BP14 BP12
S51 S49 S47 S45 S43 S41 S39 S37 S35 S33 S31 S29 S27 S25 S23 S21 S19 S17 BP15 BP13
S52 S54 S56 S58 S60 S62 RX VM O GND O H S63 S61 S59 S57 S55 S53
BP10 BP8 BP6 BP4 BP2 BP0 VA VB LC GND CLO VCC SDO VDISP BP1 BP3 BP5 BP7 BP9 BP11
LED1-27
CL-155Y/PG
B+
8.5
10.3
CN1
P-ON/LED +B
ILL-ON
COLOR
GND
LCD-CE
LCD-DATA
LCD-CLK
SIRCS
KEY-IN0
KEY-GND
KEY-IN1
DISCIN-LED
R40 100 R41 100 R42 100 R43 100 R44 470 R45 470 R46 120 R47 120 R48 120 R49 120 R50 120 R51 120 R52 120 R53 120 R54 120 R55 120 R56 120 R57 120
LED1 LED2 LED3 LED27 LED4 LED5 LED6 LED7 LED8 LED9 LED10 LED11 LED12 LED13 LED14 LED15 LED16 LED17 LED18 LED19 LED20 LED21 LED22 LED23 LED24 LED25 LED26
R11 1k LC
R10 1k SDO
R9 1k CLO
VCC 5V
VO
R1 3.3k
C2 0.1
R2 1k
R3 1k
R4 3.3k
R6 1.2k
R7 1.2k
R8
TR1
LP1
LP2
GREEN
AMBER
D2
R14 1k
R13 470
R12 100
IC2
VCC GND1 OUT GND2
TR3
TR2
D1
C1 0.22
TR3 DTD113EK GREEN SW
D2 1SS355
TR2 DTD113EK AMBER SW
D1 RD5.1M-B2
IC2 RS-20 INFRARED RAY RECEIVER
TR1 2SC2712 REG
KEY-IN0
R15 680 R16 820 R17 820 R18 1k R19 1k R20 1.5k R21 1.5k R22 2.4k R23 2.7k R24 3.9k R25 5.6k R26 8.2k
SW1 FM
SW2 AM
SW3 ▲
SW4 +
SW5 SEL
SW6 AMS ▶▶| SEEK +
SW7 AMS |◀◀ SEEK −
SW8 DISC ▶▶ PRESET +
SW9 DISC ◀◀ PRESET −
SW10 MUTE
SW11 FILE
SW12 BTM M.SCAN
SW13 SCRL/SENS
KEY-GND
SW16 CD
SW17 MD
SW18 OFF
SW19 −
SW20 DSPL
SW21 1/INTRO
SW22 2/REPEAT
SW23 3/SHUF
SW24 4/BANK
SW25 5
SW26 6
KEY-IN1
R29 680 R30 820 R31 820 R32 1k R33 1k R34 1.5k R35 1.5k R36 2.4k R37 2.7k R38 3.9k
05

SECTION 4

KEYBOARD UNIIT ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "＊" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When including parts by reference number, please include the board name.

Ref. No.	Part No.	Description	Remark
		KEYBOARD BOARD **************	
		< CAPACITOR >	
C1	1-164-299-11	CERAMIC 0.22 10% 25V	
C2	1-164-004-11	CERAMIC 6.1 10% 25V	
		< CONNECTOR >	
CN1	1-691-557-11	CONNECTOR 2P	
		< DIODE >	
D1	8-719-105-82	ZENER RD5.1MB2	
D2	8-719-988-62	DIODE 1SS355	
		< IC >	
IC1	8-759-156-11	IC LH5823P2	
IC2	8-759-515-60	IC RS-20	
		< LED >	
LED1	8-719-987-45	LED CL-155Y/PG	
LED2	8-719-987-45	LED CL-155Y/PG	
LED3	8-719-987-45	LED CL-155Y/PG	
LED4	8-719-987-45	LED CL-155Y/PG	
LED5	8-719-987-45	LED CL-155Y/PG	
LED6	8-719-987-45	LED CL-155Y/PG	
LED7	8-719-987-45	LED CL-155Y/PG	
LED8	8-719-987-45	LED CL-155Y/PG	
LED9	8-719-987-45	LED CL-155Y/PG	
LED10	8-719-987-45	LED CL-155Y/PG	
LED11	8-719-987-45	LED CL-155Y/PG	
LED12	8-719-987-45	LED CL-155Y/PG	
LED13	8-719-987-45	LED CL-155Y/PG	
LED14	8-719-987-45	LED CL-155Y/PG	
LED15	8-719-987-45	LED CL-155Y/PG	
LED16	8-719-987-45	LED CL-155Y/PG	
LED17	8-719-987-45	LED CL-155Y/PG	
LED18	8-719-987-45	LED CL-155Y/PG	
LED19	8-719-987-45	LED CL-155Y/PG	
LED20	8-719-987-45	LED CL-155Y/PG	
LED21	8-719-987-45	LED CL-155Y/PG	
LED22	8-719-987-45	LED CL-155Y/PG	
LED23	8-719-987-45	LED CL-155Y/PG	
LED24	8-719-987-45	LED CL-155Y/PG	
LED25	8-719-987-45	LED CL-155Y/PG	
LED26	8-719-987-45	LED CL-155Y/PG	
LED27	8-719-987-45	LED CL-155Y/PG	
		< LAMP >	
LP1	1-517-145-11	PILOT LAMP	
LP1	1-517-145-11	PILOT LAMP	
		< RESISTOR >	
R1	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R2	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R3	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R4	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R5	1-216-113-00	METAL CHIP 470K 5% 1/10W	

REVISED

Ref.No.	Part No.	Description	Remark
R6	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R7	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R8	1-809-998-11	THERMISTOR CHIP	
R9	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R10	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R11	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R12	1-216-025-00	METAL CHIP 100 5% 1/10W	
R13	1-216-041-00	METAL CHIP 470 5% 1/10W	
R14	1-220-264-11	METAL CHIP 1K 5% 1/4W	
R15	1-216-647-11	METAL CHIP 680 5% 1/10W	
R16	1-216-649-11	METAL CHIP 820 5% 1/10W	
R17	1-216-649-11	METAL CHIP 820 5% 1/10W	
R18	1-216-651-11	METAL CHIP 1K 5% 1/10W	
R19	1-216-651-11	METAL CHIP 1K 5% 1/10W	
R20	1-216-655-11	METAL CHIP 1.5K 5% 1/10W	
R21	1-216-655-11	METAL CHIP 1.5K 5% 1/10W	
R22	1-216-660-11	METAL CHIP 2.4K 5% 1/10W	
R23	1-216-661-11	METAL CHIP 2.7K 5% 1/10W	
R24	1-216-665-11	METAL CHIP 3.9K 5% 1/10W	
R25	1-216-669-11	METAL CHIP 5.6K 5% 1/10W	
R26	1-216-673-11	METAL CHIP 8.2K 5% 1/10W	
R29	1-216-647-11	METAL CHIP 680 5% 1/10W	
R30	1-216-649-11	METAL CHIP 820 5% 1/10W	
R31	1-216-649-11	METAL CHIP 820 5% 1/10W	
R32	1-216-651-11	METAL CHIP 1K 5% 1/10W	
R33	1-216-651-11	METAL CHIP 1K 5% 1/10W	
R34	1-216-655-11	METAL CHIP 1.5K 5% 1/10W	
R35	1-216-655-11	METAL CHIP 1.5K 5% 1/10W	
R36	1-216-660-11	METAL CHIP 2.4K 5% 1/10W	
R37	1-216-661-11	METAL CHIP 2.7K 5% 1/10W	
R38	1-216-665-11	METAL CHIP 3.9K 5% 1/10W	
R40	1-220-258-11	METAL CHIP 120 5% 1/4W	
R41	1-220-258-11	METAL CHIP 120 5% 1/4W	
R42	1-220-258-11	METAL CHIP 120 5% 1/4W	
R43	1-220-258-11	METAL CHIP 120 5% 1/4W	
R44	1-220-261-11	METAL CHIP 470 5% 1/4W	
R45	1-220-261-11	METAL CHIP 470 5% 1/4W	
R46	1-220-239-11	METAL CHIP 120 5% 1/4W	
R47	1-220-239-11	METAL CHIP 120 5% 1/4W	
R48	1-220-239-11	METAL CHIP 120 5% 1/4W	

Ref.No.	Part No.	Description	Remark
R49	1-220-239-11	METAL CHIP 120 5% 1/4W	
R50	1-220-239-11	METAL CHIP 120 5% 1/4W	
R51	1-220-239-11	METAL CHIP 120 5% 1/4W	
R52	1-220-239-11	METAL CHIP 120 5% 1/4W	
R53	1-220-239-11	METAL CHIP 120 5% 1/4W	
R54	1-220-239-11	METAL CHIP 120 5% 1/4W	
R55	1-220-239-11	METAL CHIP 120 5% 1/4W	
R56	1-220-239-11	METAL CHIP 120 5% 1/4W	
R57	1-220-239-11	METAL CHIP 120 5% 1/4W	
		< SWITCH >	
SW1	1-692-037-31	SWITCH (FM)	
SW2	1-692-037-31	SWITCH (AM)	
SW3	1-692-037-31	SWITCH (▲)	
SW4	1-692-037-31	SWITCH (+)	
SW5	1-692-037-31	SWITCH (SEL)	
SW6	1-692-037-31	SWITCH (AMS ▶▶|/SEEK +)	
SW7	1-692-037-31	SWITCH (AMS |◀◀/SEEK -)	
SW8	1-692-037-31	SWITCH (DISC ▶▶/SEEK +)	
SW9	1-692-037-31	SWITCH (DISC ◀◀/SEEK +)	
SW10	1-692-037-31	SWITCH (MUTE)	
SW11	1-692-037-31	SWITCH (FILE)	
SW12	1-692-037-31	SWITCH (BTM/M. SCAN)	
SW13	1-692-037-31	SWITCH (SCRL/SENS)	
SW16	1-692-037-31	SWITCH (CD)	
SW17	1-692-037-31	SWITCH (MD)	
SW18	1-692-037-31	SWITCH (OFF)	
SW19	1-692-037-31	SWITCH (-)	
SW20	1-692-037-31	SWITCH (DSPL)	
SW21	1-692-037-31	SWITCH (1/INTRO)	
SW22	1-692-037-31	SWITCH (2/REPEAT)	
SW23	1-692-037-31	SWITCH (3/SHUF)	
SW24	1-692-037-31	SWITCH (4/BANK)	
SW25	1-692-037-31	SWITCH (5)	
SW26	1-692-037-31	SWITCH (6)	
		< TRANSISTOR >	
TR1	8-729-230-50	TRANSISTOR 2SC2712-YG	
TR2	8-729-904-66	TRANSISTOR DTD113EK	
TR3	8-729-904-66	TRANSISTOR DTD113EK	

9-957-636-81

(Including 9-957-636-91)

Sony Corporation
Mobile Electronics Group

English
93C0576-1
Printed in Japan
© 1993. 3
Published by Audio Corporate Planning Group

MDX-U1/U1RDS

SONY®
SERVICE MANUAL

US Model
Canadian Model
E Model
MDX-U1
AEP Model
MDX-U1RDS

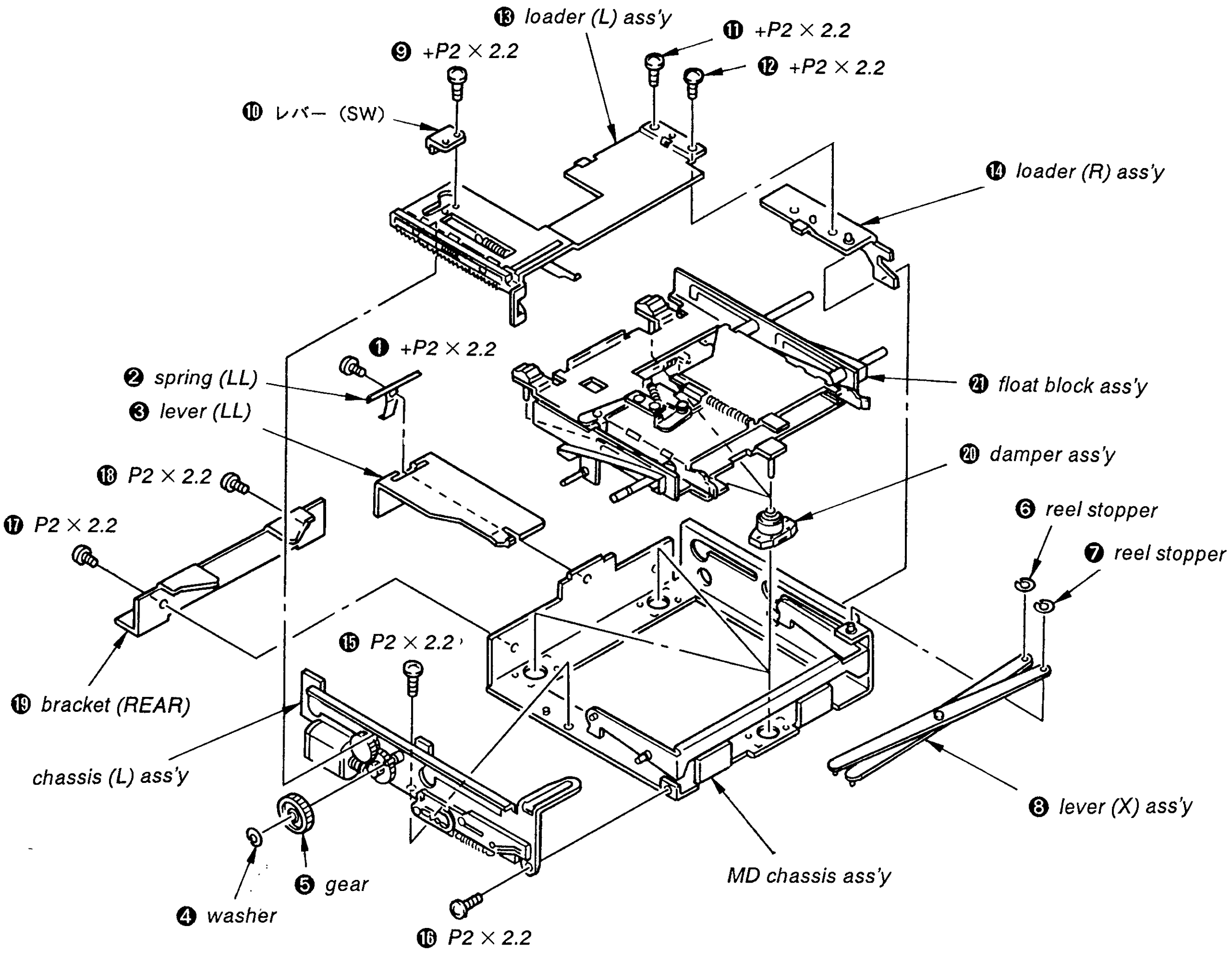
SUPPLEMENT-2

File this supplement with the service manual.

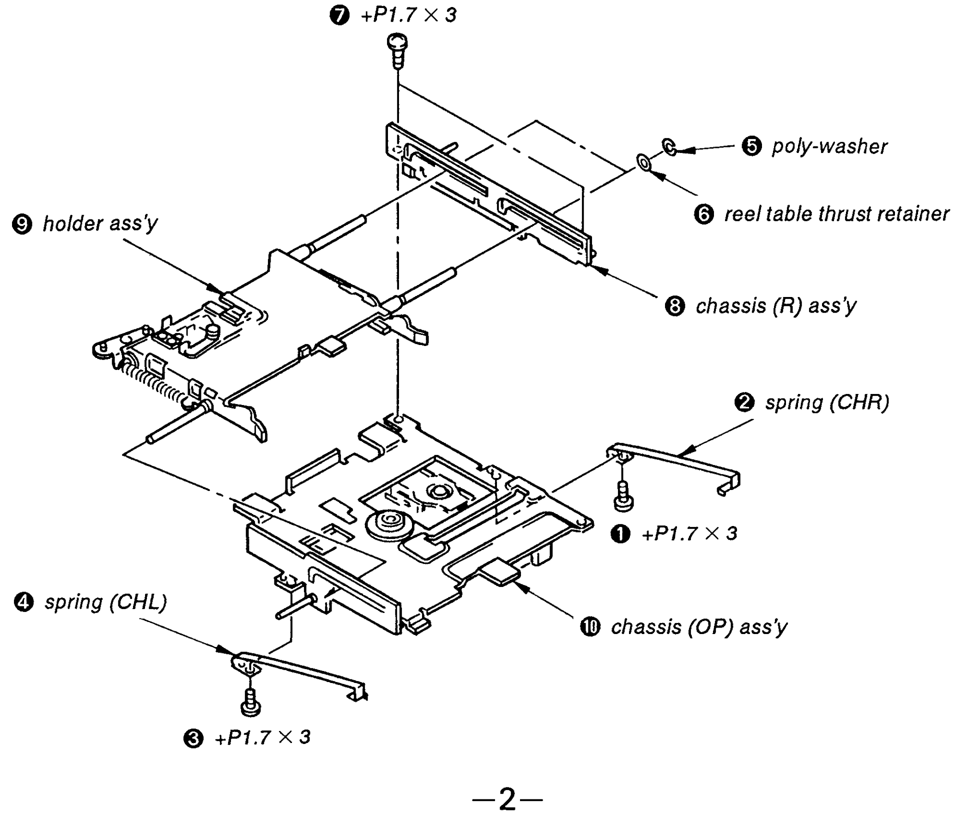
Subject:
1. **Disassembly**
   (FLOAT BLOCK ASSY, CHASSIS (OP) BLOCK ASSY)
2. **Correction of adjustments**

1. Disassembly

• Float Block Assy


⓭ loader (L) ass'y
❾ +P2 × 2.2
⓫ +P2 × 2.2
⓬ +P2 × 2.2
❿ レバー (SW)
⓮ loader (R) ass'y
❶ +P2 × 2.2
❷ spring (LL)
❸ lever (LL)
㉑ float block ass'y
⓴ damper ass'y
⓲ P2 × 2.2
⓱ P2 × 2.2
❻ reel stopper
❼ reel stopper
⓯ P2 × 2.2
⓳ bracket (REAR)
chassis (L) ass'y
❽ lever (X) ass'y
❺ gear
❹ washer
MD chassis ass'y
⓰ P2 × 2.2

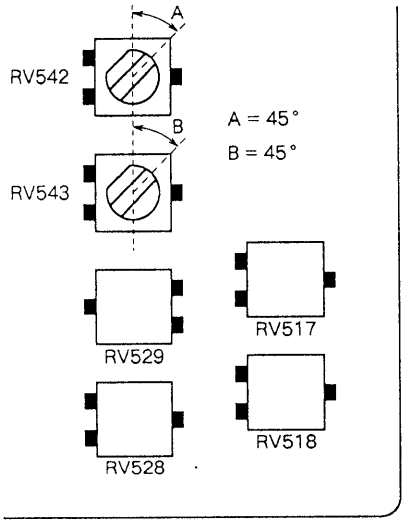
• Chassis (OP) Block Assy


❼ +P1.7 × 3
❺ poly-washer
❻ reel table thrust retainer
❾ holder ass'y
❽ chassis (R) ass'y
❷ spring (CHR)
❶ +P1.7 × 3
❹ spring (CHL)
❿ chassis (OP) ass'y
❸ +P1.7 × 3

2. Correction of adjustments
Page 6 (Supplement-1: 9-957-636-81)

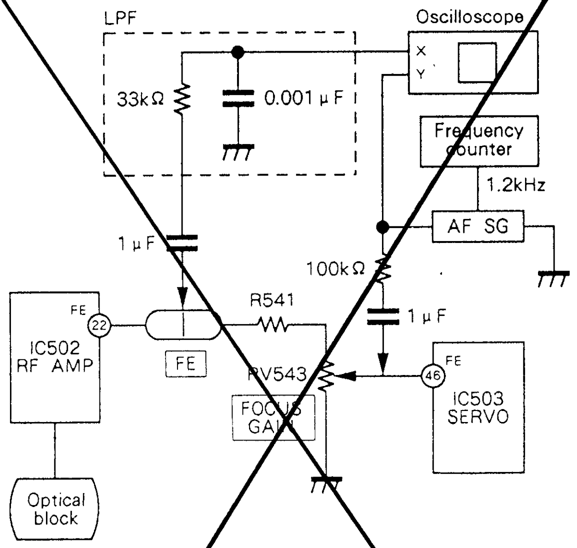
FOCUS/TRACKING GAIN Adjustments

Set both RV542 and RV543 where turned clockwise by 45 degrees, as shown below.

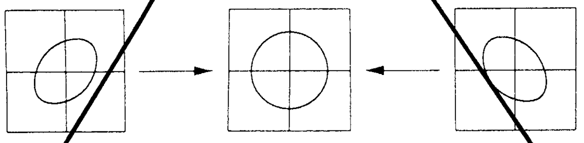

A
RV542
B
A = 45°
B = 45°
RV543
RV517
RV529
RV518
RV528

deletion

~~1. FOCUS GAIN Adjustment~~


LPF
Oscilloscope
X
Y
33kΩ
0.001 μF
Frequency counter
1.2kHz
AF SG
1 μF
100kΩ
R541
1 μF
FE
22
IC502
RF AMP
FE
RV543
FOCUS GAIN
FE
46
IC503
SERVO
Optical block

~~(Waveforms observed on the oscilloscope)~~

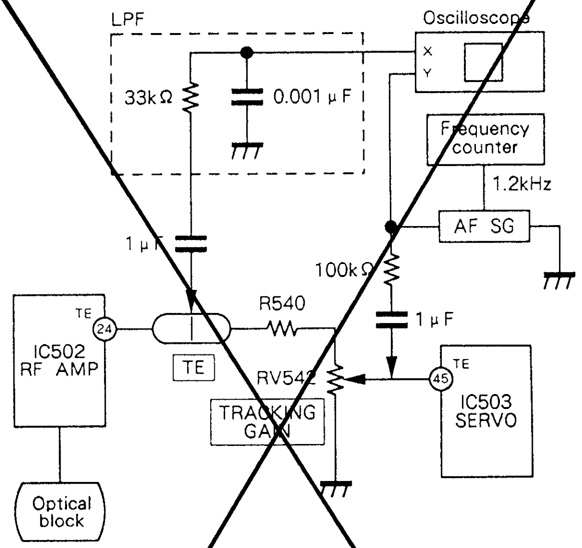


~~*(a) Gain is too low. (b) Gain is appropriate. (a) Gain is too high.*~~

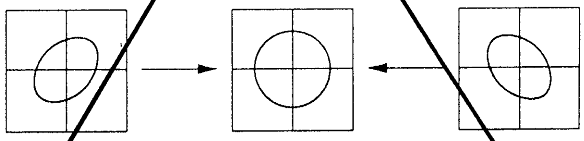
~~Play back an MO disk, and then adjust RV543 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.~~

deletion

~~2. TRACKING GAIN Adjustment~~


LPF
Oscilloscope
X
Y
33kΩ
0.001 μF
Frequency counter
1.2kHz
AF SG
1 μF
100kΩ
R540
1 μF
TE
24
IC502
RF AMP
TE
RV542
TRACKING GAIN
TE
45
IC503
SERVO
Optical block

~~(Waveforms observed on the oscilloscope)~~

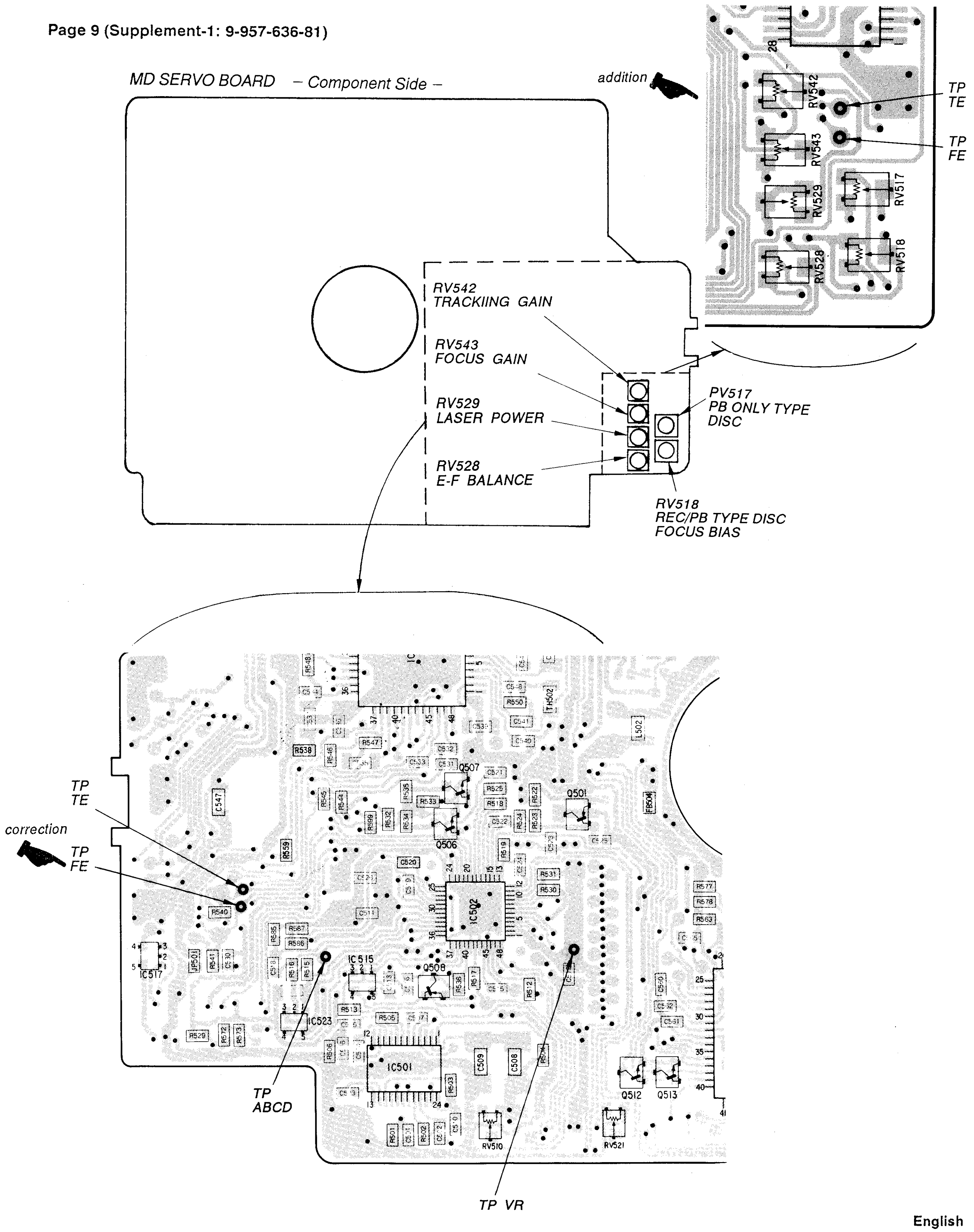


~~*(a) Gain is too low. (b) Gain is appropriate. (a) Gain is too high.*~~

~~Play back the MO disk, and then adjust RV542 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.~~

Page 9 (Supplement-1: 9-957-636-81)

MD SERVO BOARD – Component Side –


addition
TP TE
TP FE
RV542
RV543
RV529
RV517
RV528
RV518
RV542 TRACKIING GAIN
RV543 FOCUS GAIN
RV529 LASER POWER
RV528 E-F BALANCE
PV517 PB ONLY TYPE DISC
RV518 REC/PB TYPE DISC FOCUS BIAS
TP TE
correction
TP FE
TP ABCD
TP VR
IC502
IC501
IC515
IC517
IC523
Q501
Q506
Q507
Q508
Q512
Q513
RV510
RV521

English
93E0576-1
Printed in Japan
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Mobile Electronics Group

Published by Audio Sector Quality Assurance Dept.

MDX-U1/U1RDS

SONY®

SERVICE MANUAL

US Model
Canadian Model
E Model
MDX-U1
AEP Model
MDX-U1RDS

SUPPLEMENT-3

File this supplement with the service manual.

Subject:
1. **Revision of Microcomputer IC504 and IC514**
2. **Printed Circuit Boards Modification**

This supplement updates the service manual to include production changed.

TABLE OF CONTENTS

Section	*Title*	*Page*
1.	REVISION OF MICROCOMPUTER IC504 AND IC514	2
2.	PRINTED CIRCUIT BOARDS MODIFICATION	3
	Different Parts List	3
	MD Servo Section Printed Wiring Boards	5
	MD Servo Section Schematic Diagram	9
	Main Section Schemaitc Diagram	14
	Main Section Printed Wiring Boards	19

English
9310577-1
Printed in Japan

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9-957-636-83

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Mobile Electronics Group

Published by Audio Sector Quality Assurance Dept.

1. REVISION OF MICROCOMPUTER IC504 AND IC514

IC504 and IC514 has been changed as spare parts for repair.
Please note that there are two different type of IC514.
Be sure to use right one when it's changed.

• New spare parts

Board Name	Ref. No.	Part No.	Description	Remarks
Main	IC504	8-759-176-08	IC μPD75518GF-108-3B9	
MD servo	IC514	8-759-173-76	IC μPD78136GF-030-3B9	Not substitute
		8-759-178-11	IC μPD78136GF-031-3B9	

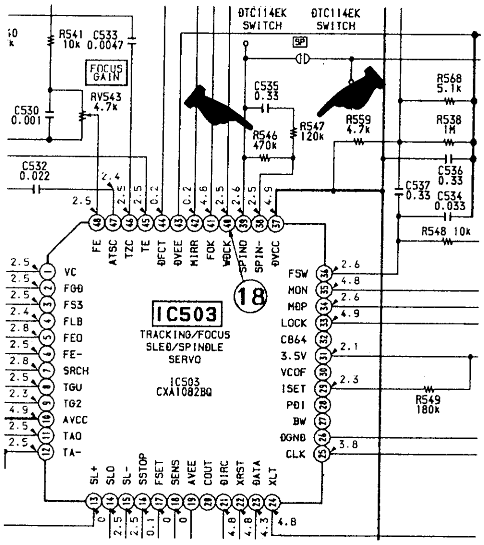
• Change notice for IC514 (Mechanism control microcomputer)

The sets is used three different type of IC514.
Be sure to use right one with the following chart when it's changed.

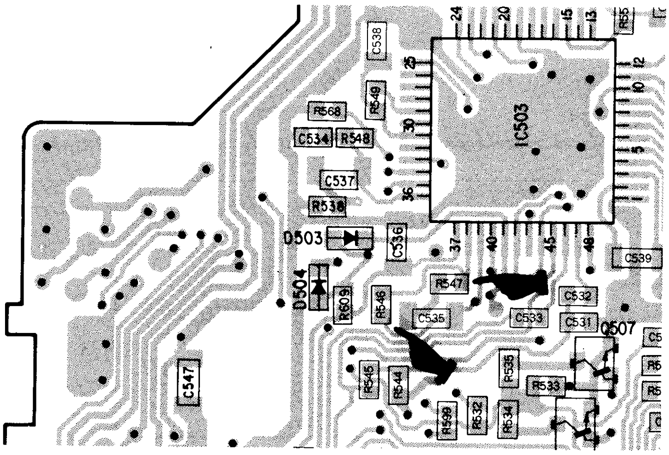
The type of microcomputer for mass-production	The type of microcomputer for repair		Treatment		
	Part No.	Description		Part No.	Description
μPD78138	8-759-173-76	μPD78136GF-030-3B9	R546 470kΩ → R547 120kΩ →	1-216-849-11 1-216-843-11	METAL CHIP 220kΩ 5% 1/16W METAL CHIP 68kΩ 5% 1/16W
μPD78136GF-030-3B9	8-759-173-76	μPD78136GF-030-3B9			
μPD78136GF-031-3B9	8-759-178-11	μPD78136GF-031-3B9			

• R546, R547 Location

[MD SERVO BOARD]


DTC114EK SWITCH
DTC114EK SWITCH
R541 10k
C533 0.0047
FOCUS GAIN
RV543 4.7k
C530 0.001
C532 0.022
C535 0.33
R546 470k
R547 120k
R559 4.7k
R568 5.1k
R538 1M
C536 0.33
C537 0.33
C534 0.033
R548 10k
R549 180k
IC503
TRACKING/FOCUS SLED/SPINDLE SERVO
IC503 CXA1082BQ
18

[MD SERVO BOARD] (CONDUCTOR SIDE)


IC503
C538
R568
R549
C534
R548
C537
R538
D503
C536
D504
R609
R546
R547
C535
C533
C532
C531
Q507
C539
C547
R545
R544
R599
R632
R634
R535
R533

2. PRINTED CIRCUIT BOARDS MODIFICATION

Different Parts List

Ref. No.	FORMER		NEW	
	Part No.	Description	Part No.	Description
		MD SERVO BOARD **************		MD SERVO BOARD **************
C517	1-135-191-21	TANTAL. CHIP 0.47μF 10% 20V	1-135-177-21	TANTAL. CHIP 1μF 10% 25V
C542	1-135-155-21	TANTAL. CHIP 4.7μF 10% 16V	1-135-216-21	TANTAL. CHIP 10μF 10% 10V
C545	1-135-216-11	TANTAL. CHIP 10μF 20% 10V	1-135-518-11	ELECT CHIP 10μF 20% 10V
D503		—	8-719-988-62	DIODE 1SS355
D504		—	8-719-988-62	DIODE 1SS355
IC506	8-759-057-47	IC MS514400L-80VC	8-752-360-59	IC CXK414400TM-12U
IC514	—	IC μPD78138	8-759-178-11	IC μPD78136GF-031-3B9
Q514		—	8-729-900-53	TRANSISTOR DTC114EK
R516	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	1-216-819-11	METAL CHIP 680 5% 1/16W
R559	1-218-708-11	METAL CHIP 4.7K 0.50% 1/16W	1-216-829-11	METAL CHIP 4.7K 5% 1/16W
R568	1-218-272-11	METAL CHIP 5.1K 0.50% 1/16W	1-216-830-11	METAL CHIP 5.6K 5% 1/16W
R606		—	1-216-829-11	METAL CHIP 4.7K 5% 1/16W
R607		—	1-216-829-11	METAL CHIP 4.7K 5% 1/16W
R608		—	1-216-821-11	METAL CHIP 1K 5% 1/16W
R609		—	1-216-827-11	METAL CHIP 3.3K 5% 1/16W
		MAIN BOARD **********		MAIN BOARD **********
C43	1-163-195-00	CERAMIC CHIP 390PF 5% 50V	1-163-131-00	CERAMIC CHIP 390PF 5% 50V
C110		—	1-163-038-00	CERAMIC CHIP 0.1μF 25V
C210		—	1-163-038-00	CERAMIC CHIP 0.1μF 25V
C903	1-164-232-11	CERAMIC CHIP 0.01PF 50V	1-163-037-11	CERAMIC CHIP 0.022μF 10% 25V
D593		—	8-719-210-33	DIODE EC10DS2
IC504	8-759-166-46	IC μPD75518GF-090-3B9	8-759-176-08	IC μPD75518GF-108-3B9
IC992	8-759-078-45	IC NJM78L09UA	8-759-168-19	IC TA78L09F-TE121
R99	1-249-429-11	CARBON 10K 5% 1/4W (US, CND, E)	1-216-073-00	METAL CHIP 10K 5% 1/10W (US, CND, E)
R99	1-249-437-11	CARBON 47K 5% 1/4W (AEP, G)	1-216-089-00	METAL CHIP 47K 5% 1/10W (AEP, G)
R229	1-249-429-11	CARBON 10K 5% 1/4W	1-216-073-00	METAL CHIP 10K 5% 1/10W
R910	1-216-029-00	METAL CHIP 150 5% 1/10W	1-216-033-00	METAL CHIP 220 5% 1/10W

MD SERVO SECTION PRINTED WIRING BOARDS

OPTICAL PIC-UP BLOCK
FOCUS COIL
TRACKING COIL
[LOADING BOARD]
SW622 LOADING START/EJECT END
SW621 LOADING END
WHT
GRY
BLK
1-646-322-
12
[RELAY BOARD]
CNP504
SW631 INNER LIMIT
M901 SPINDLE MOTOR
M902 SLED MOTOR
RED
CNP509
CNP510
1-646-323-
[DISCRIMINATION BOARD]
SW632 PB ONLY DISC/REC,PB DISC
1-646-324-
11
[MD SERVO BOARD] (COMPONENT SIDE)
1-646-325-
13
[MD SERVO BOARD] (CONDUCTOR SIDE)
A
TO MAIN BOARD CN901
D
TO POWER BOARD CN803
M903 LOADING MOTOR
CNP505
CNP506
CNP507
IC503
IC510
IC519
Q504
Q505
Q514
D502
(CHASSIS)
1-646-325-
13

MD SERVO SECTION SCHEMATIC DIAGRAM

OPTICAL PIC-UP BLOCK (KMS-150A)
[MD SERVO BOARD]
IC501 ADIP CXA1500N
IC502 RF AMP SIGNAL PROCESSOR CXA1581R
IC503 TRACKING/FOCUS SLED/SPINDLE SERVO CXD1828Q
IC504 EFM/CIRC CXD2525R
IC505 CD RAM SHOCK RESISTANCE CXD2524Q
IC506 4M D-RAM
IC507 ATRAC CXD2527R
IC510 ATRAC CXD2527R
IC513 TRACKING/FOCUS MOTOR DRIVER BA6296FP
IC514 MECHA μCOM
IC515 SWITCH
IC516 SWITCH
IC517 SWITCH
IC519 MOTOR DRIVE
IC523 SWITCH
FOCUS COIL
TRACKING COIL
RELAY BOARD
M902 SLED
M901 SPINDLE
SW631 INNER LIMIT
DISCRIMINATION BOARD
M903 LOADING
LOADING BOARD
SW622 LOADING START/EJECT END
SW621 LOADING END
A TO MAIN BOARD CN501
D TO POWER SUPPLY BOARD CN803
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
A B C D E F G H I J K L M N O

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D503	G-24	IC502	H-25
D504	G-24	IC503	E-24
D514	E-25	IC504	I-31
		IC505	F-29
Q501	G-26	IC506	G-14
Q504	D-27	IC507	F-31
Q505	C-27	IC510	D-31
Q506	G-25	IC513	F-20
Q507	G-25	IC514	I-28
Q508	H-25	IC515	H-24
Q512	I-27	IC516	J-31
Q513	I-27	IC517	H-22
		IC519	C-25
IC501	I-24	IC523	I-24

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ▬▬▬ : B + Line.
- ▬ ▬ ▬ : B – Line.
- Power voltage is dc 14.4 V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : MD PB/Common
  ( ) : MD stop
  《 》: FM
  ＊ : Impossible to measure
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : MD

Note on Printed Wiring Board:

- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern of the rear side.
- ▨ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

MAIN SECTION SCHEMATIC DIAGRAM

MAIN BOARD
CONNECTOR BOARD
POWER SUPPLY BOARD
IC901 DIGITAL SIGNAL PROCESSOR
IC902 D.FILTER D/A CONVERTER
IC904 A.+5V REG.
IC905 A.-5V REG.
IC991 A.+5V REG.
IC992 A.+5V REG.
IC102 TONE AMP
IC101 LINE AMP
IC201 LINE AMP
IC103 EQ AMP
IC104 MIX AMP
IC204 MIX AMP
IC301 VOL CONTROL
IC203 EQ AMP
IC202 TONE AMP
IC302 LINE SELECT
IC303
IC501 BUFFER
IC502 RESET SWITCH
IC503 L.P.F.+B 5V REG.
IC504 MAIN COMPUTER
IC601 TUNER COMPUTER
IC602 EEP ROM
IC10 DIVER
IC20 PLL
IC40 FM NC MPX
IC50 RDS DET
IC60 RDS RAM
IC801 5V REG.
IC802
MDX-U1 US,CND,E Model
MDX-U1RDS AEP,G Model
TO MD BOARD CN507
TO MD SERVO BOARD
TO KEY BOARD UNIT
FRONT
REAR
LINE OUT
UNILINK IN
UNILINK
BACK UP
TEL-MUTE
BATT
GND
ACC
ANT.REM
AMP.REM
ON POWER
05

*DESTINATION

	JR601	JR602	JR603	JR604	JR606	JR607	JR608	JR609	JR610	JR611	R603	R604	R605	R606	SW601
MDX-U1 (US) (CND)	○	○	○	○	○	○	○	○	○	○	X	X	X	X	X
MDX-U1RDS (AEP)	X	X	X	X	X	X	X	X	X	X	○	○	○	○	X
MDX-U1RDS (G)	X	X	X	X	X	X	X	X	X	X	○	○	○	○	X
MDX-U1 (E)	X	○	○	X	○	○	○	○	○	○	○	X	X	○	○

	Q602	Q601	R574	C55 C56	R50 R51	R70 R80	R99	R128 R228	IC602	TU10	C585 C586	C54
MDX-U1 (US) (CND)	X	X	○	0.027	82K	62K	10K	1.2K	X24C041	1-693-045-11	47P	0.01
MDX-U1RDS (AEP)	○	○	X	0.018	82K	56K	47K	820	X24C161	1-693-046-11	47P	0.0082
MDX-U1RDS (G)	○	○	X	0.018	100K	47K	47K	680	X24C161	1-693-046-11	47P	0.0082
MDX-U1 (E)	X	X	○	0.018	82K	56K	10K	820	X24C041	1-693-045-11	100P	0.01

- Signal path.
  ⇨ : FM
  ⇨ : MD
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM/Common
  (   ) : MD stop
  《   》: MD PB
  [   ] : AM

- **See page 9 for other notes.**

MAIN SECTION PRINTED WIRING BOARDS

1
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27
28
29
30
31
32
33
34
A
B
C
D
E
F
G
H
I
J
K
[MAIN BOARD] (COMPONENT SIDE)
[MAIN BOARD] (CONDUCTOR SIDE)
[POWER BOARD] (COMPONENT SIDE)
[POWER BOARD] (CONDUCTOR SIDE)
[CONNECTOR BOARD]
A
TO MD SERVO BOARD CNP507
D
TO MD SERVO BOARD
TO KEY BOARD UNIT
FRONT
REAR
LINE OUT PUT
UNI/LINK IN
BAT REM
GND
BATT
ACC
AMP REM
MAIN
SUB
FAN1
IC601
IC504
IC501
1-645-956-
1-645-958-
1-645-957-

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1	E-26	IC601	I-8
D2	E-2	IC602	I-7
D4	I-28	IC901	E-11
D7	G-24	IC902	G-10
D8	H-1	IC904	D-18
D101	E-21	IC905	B-18
D201	H-20	IC991	D-18
D301	E-20	IC992	C-19
D302	H-22		
D501	D-13	Q1	F-3
D502	D-17	Q2	F-4
D503	B-17	Q3	I-1
D504	C-16	Q5	E-4
D505	G-13	Q6	G-28
D506	H-10	Q8	F-26
D507	H-11	Q9	G-26
D508	I-19	Q10	F-5
D509	I-13	Q11	F-4
D510	E-16	Q12	G-24
D511	C-17	Q13	E-4
D512	E-8	Q21	H-23
D513	C-17	Q101	D-24
D514	C-1	Q102	D-23
D515	E-12	Q103	G-23
D516	B-26	Q104	G-20
D517	C-27	Q201	D-22
D518	H-20	Q202	D-23
D519	K-16	Q203	F-23
D520	B-17	Q204	F-20
D521	C-16	Q301	E-9
D522	K-3	Q302	E-10
D523	K-20	Q303	J-18
D524	K-20	Q304	H-21
D255	J-20	Q305	H-21
D526	K-19	Q501	D-18
D527	K-19	Q502	D-18
D528	K-17	Q503	C-13
D529	K-18	Q504	C-12
D530	K-17	Q506	G-14
D531	K-17	Q508	H-19
D532	K-12	Q509	I-19
D533	J-12	Q511	H-10
D534	K-16	Q512	H-10
D535	G-17	Q513	F-13
D536	C-26	Q514	H-11
D537	C-26	Q515	H-11
D538	E-12	Q516	D-17
D539	K-11	Q517	D-8
D540	K-11	Q518	C-16
D551	K-20	Q520	E-9
D593	B-4	Q521	D-9
D601	J-9	Q522	D-16
D602	F-4	Q523	C-12
D905	D-19	Q524	E-17
		Q525	F-17
IC10	E-3	Q526	B-25
IC20	G-3	Q528	I-15
IC40	H-4	Q529	C-25
IC101	E-6	Q530	I-10
IC102	G-22	Q531	I-10
IC103	F-23	Q532	J-10
IC104	G-9	Q533	J-9
IC201	E-7	Q534	J-12
IC202	G-22	Q535	J-12
IC203	F-21	Q536	K-12
IC204	F-9	Q537	K-13
IC301	F-7	Q904	B-19
IC302	H-7	Q905	D-20
IC303	H-21	Q906	D-20
IC501	H-10	Q907	E-17
IC502	K-16	Q991	D-9
IC503	E-19	Q992	F-20
IC504	I-11		

MDX-U1/U1RDS

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E Model
MDX-U1
AEP Model
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SUPPLEMENT-2

File this supplement with the service manual.

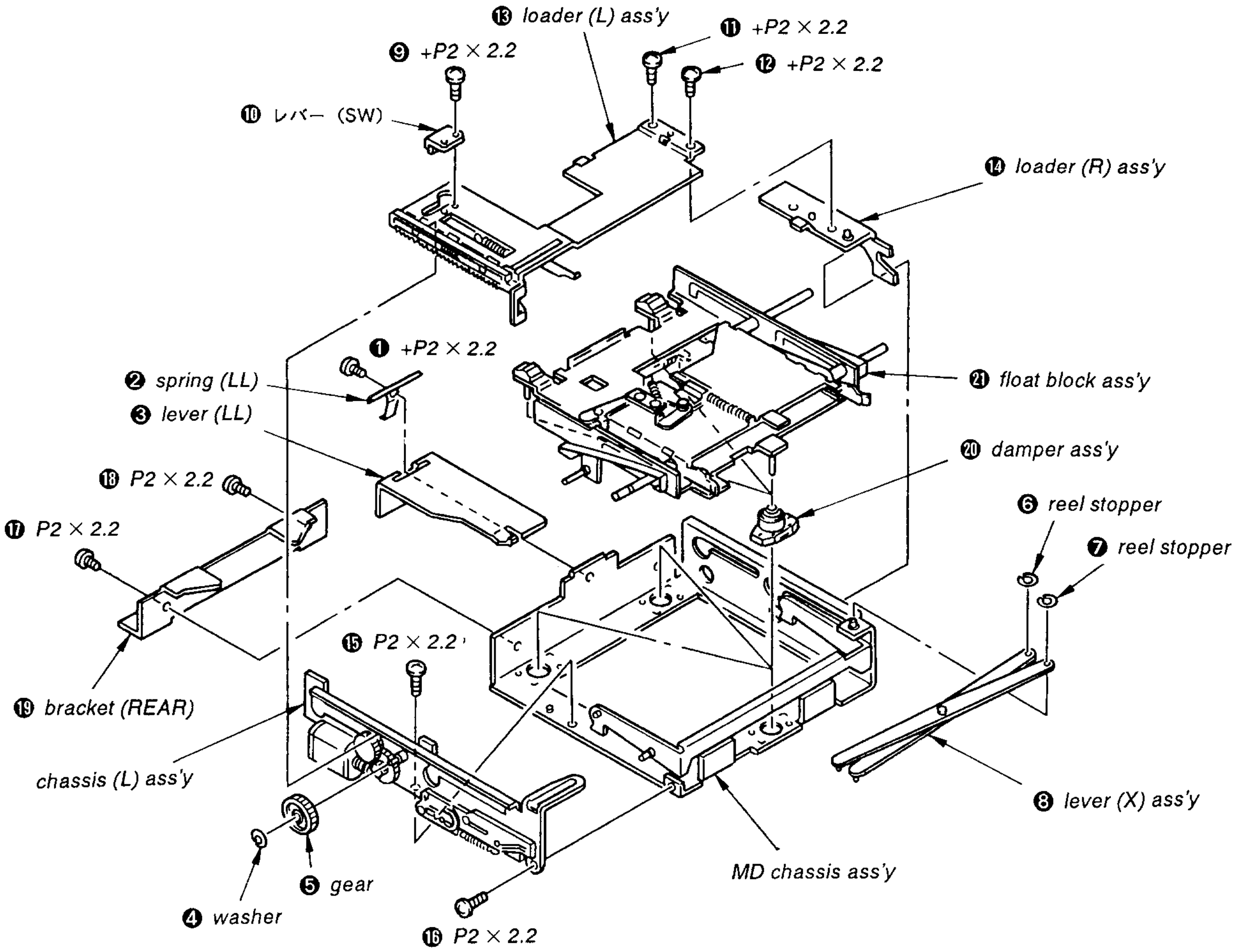
Subject:

1. **Disassembly**
   (FLOAT BLOCK ASSY, CHASSIS (OP) BLOCK ASSY)
2. **Correction of adjustments**

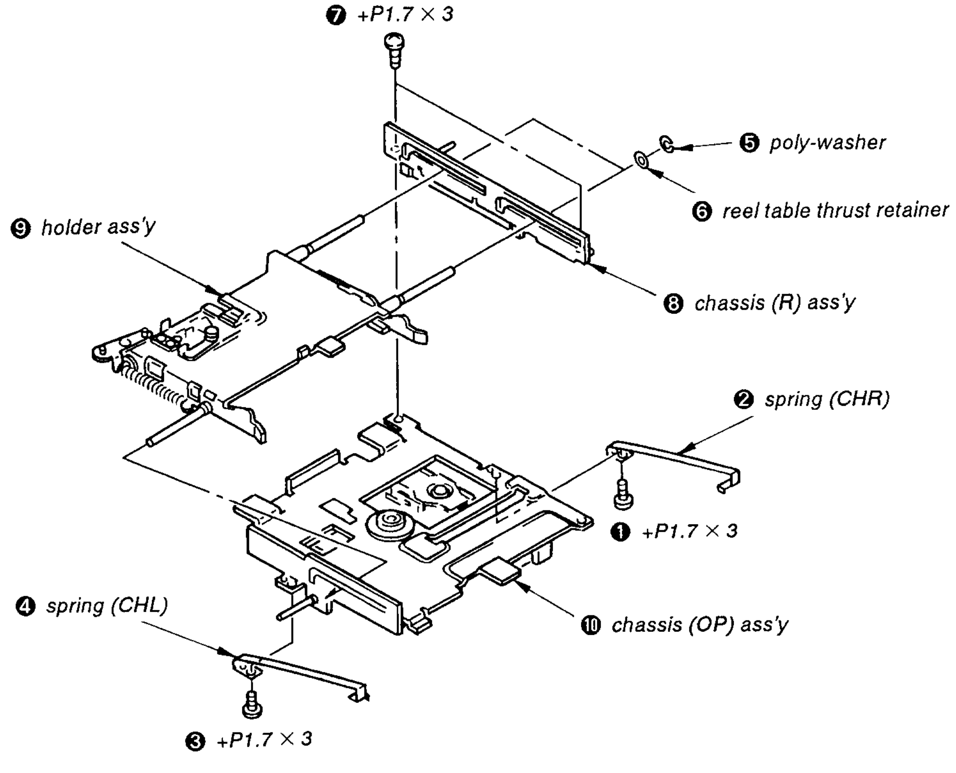
MICROFILM

1. Disassembly

• Float Block Assy


⓭ loader (L) ass'y
⓫ +P2 × 2.2
❾ +P2 × 2.2
⓬ +P2 × 2.2
❿ レバー (SW)
⓮ loader (R) ass'y
❶ +P2 × 2.2
❷ spring (LL)
(21) float block ass'y
❸ lever (LL)
⓴ damper ass'y
⓲ P2 × 2.2
❻ reel stopper
⓱ P2 × 2.2
❼ reel stopper
⓯ P2 × 2.2
⓳ bracket (REAR)
chassis (L) ass'y
❽ lever (X) ass'y
❺ gear
MD chassis ass'y
❹ washer
⓰ P2 × 2.2

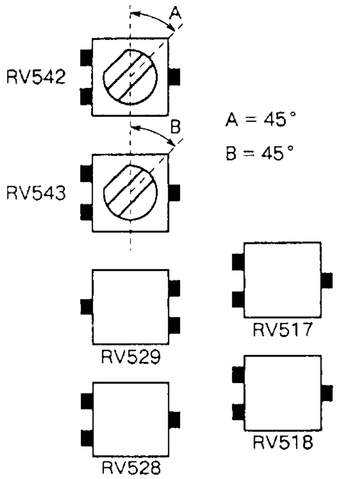
• Chassis (OP) Block Assy


❼ +P1.7 × 3
❺ poly-washer
❻ reel table thrust retainer
❾ holder ass'y
❽ chassis (R) ass'y
❷ spring (CHR)
❶ +P1.7 × 3
❹ spring (CHL)
❿ chassis (OP) ass'y
❸ +P1.7 × 3

2. Correction of adjustments
Page 6 (Supplement-1: 9-957-636-81)

FOCUS/TRACKING GAIN Adjustments

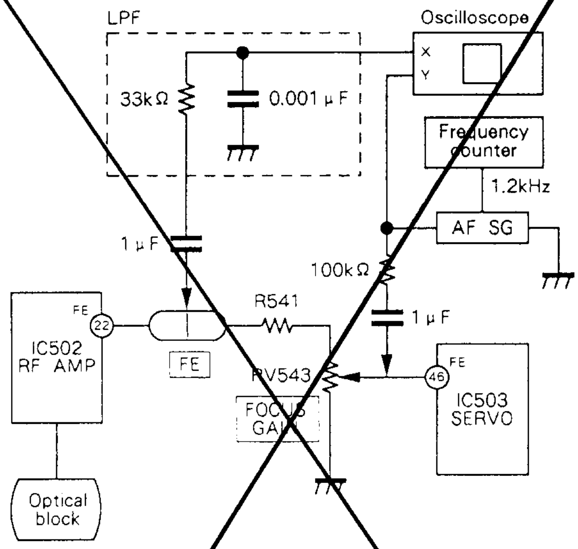
Set both RV542 and RV543 where turned clockwise by 45 degrees, as shown below.



A
RV542
B
A = 45°
B = 45°
RV543
RV529
RV517
RV528
RV518

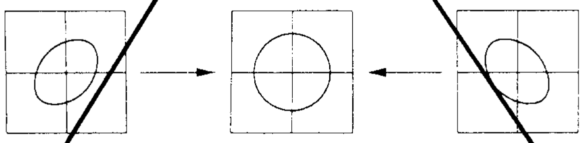
deletion

~~1. FOCUS GAIN Adjustment~~



LPF
Oscilloscope
X
Y
33kΩ
0.001 μF
Frequency counter
1.2kHz
AF SG
1 μF
100kΩ
R541
1 μF
FE
22
IC502
RF AMP
FE
RV543
FOCUS GAIN
FE
46
IC503
SERVO
Optical block

~~(Waveforms observed on the oscilloscope)~~

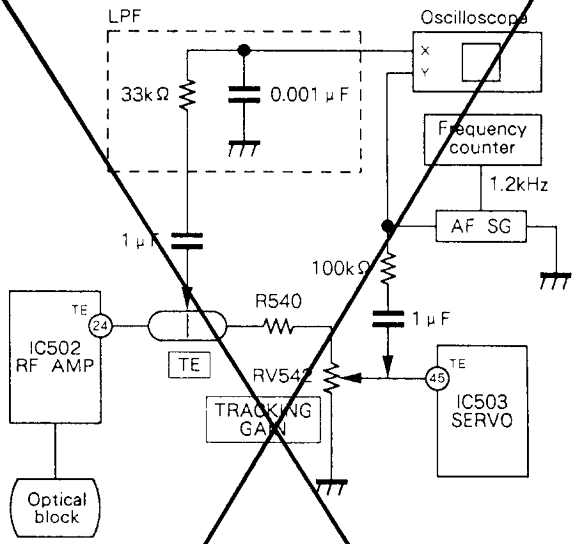


~~*(a) Gain is too low. (b) Gain is appropriate. (a) Gain is too high.*~~

~~Play back an MO disk, and then adjust RV543 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.~~

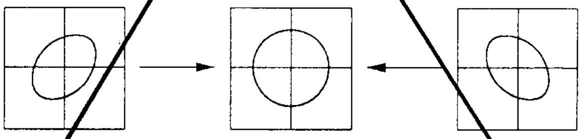
deletion

~~2. TRACKING GAIN Adjustment~~



LPF
Oscilloscope
X
Y
33kΩ
0.001 μF
Frequency counter
1.2kHz
AF SG
1 μF
100kΩ
R540
1 μF
TE
24
IC502
RF AMP
TE
RV542
TRACKING GAIN
TE
45
IC503
SERVO
Optical block

~~(Waveforms observed on the oscilloscope)~~

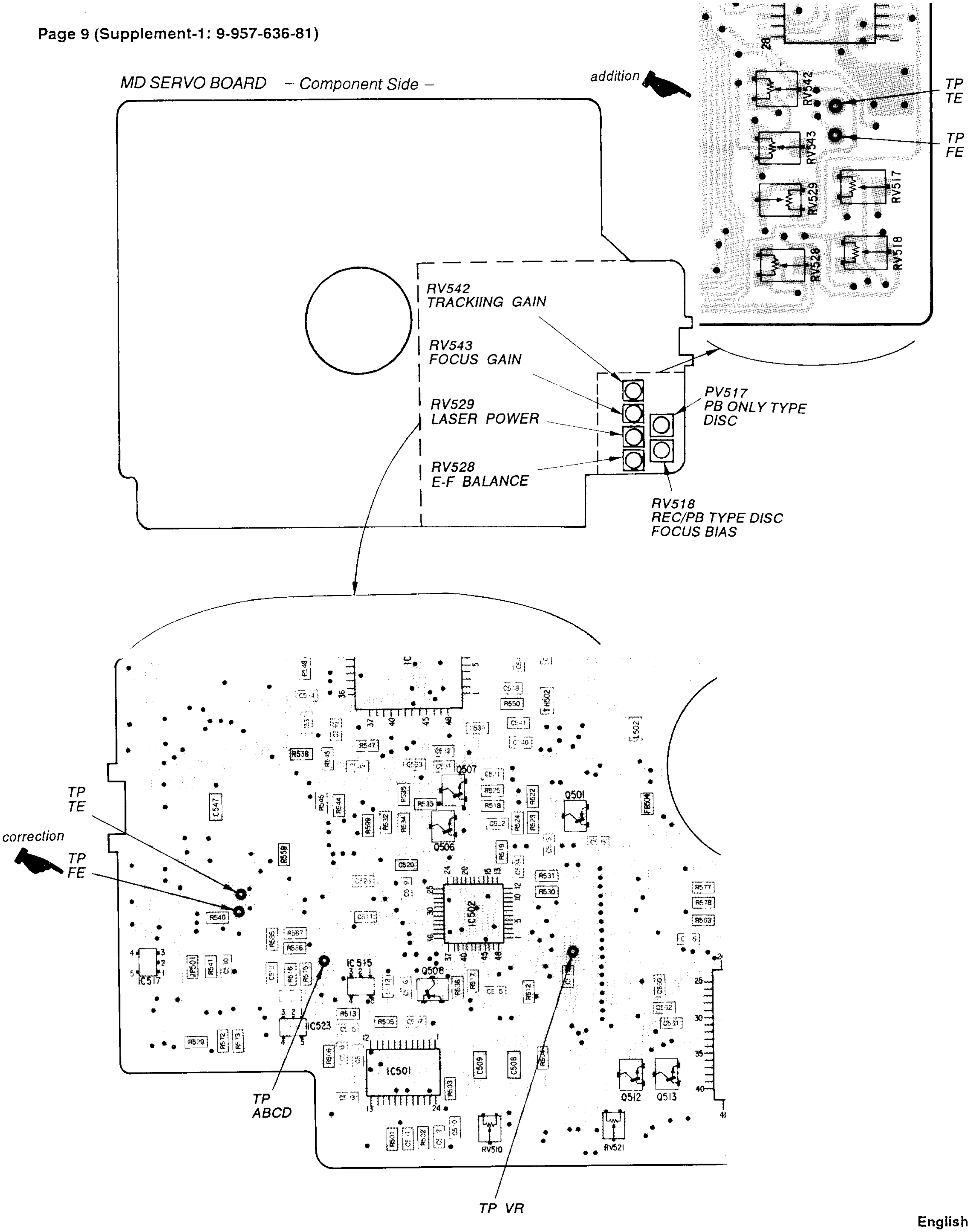


~~*(a) Gain is too low. (b) Gain is appropriate. (a) Gain is too high.*~~

~~Play back the MO disk, and then adjust RV542 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.~~

Page 9 (Supplement-1: 9-957-636-81)

MD SERVO BOARD – Component Side –


addition
TP TE
TP FE
RV542
RV543
RV529
RV517
RV518
RV528
RV542 TRACKIING GAIN
RV543 FOCUS GAIN
RV529 LASER POWER
RV528 E-F BALANCE
PV517 PB ONLY TYPE DISC
RV518 REC/PB TYPE DISC FOCUS BIAS
TP TE
correction
TP FE
TP ABCD
TP VR
IC502
IC501
IC515
IC517
IC523
Q501
Q506
Q507
Q508
Q512
Q513
RV510
RV521

MDX-U1/U1RDS

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AEP Model
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SUPPLEMENT-3

File this supplement with the service manual.

Subject:
1. **Revision of Microcomputer IC504 and IC514**
2. **Printed Circuit Boards Modification**

This supplement updates the service manual to include production changed.

TABLE OF CONTENTS

Section	*Title*	*Page*
1.	**REVISION OF MICROCOMPUTER IC504 AND IC514**	2
2.	**PRINTED CIRCUIT BOARDS MODIFICATION**	3
	Different Parts List	3
	MD Servo Section Printed Wiring Boards	5
	MD Servo Section Schematic Diagram	9
	Main Section Schemaitc Diagram	14
	Main Section Printed Wiring Boards	19

English
93I0577-1
Printed in Japan

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9-957-636-83

Sony Corporation
Mobile Electronics Group

Published by Audio Sector Quality Assurance Dept.

1. REVISION OF MICROCOMPUTER IC504 AND IC514

IC504 and IC514 has been changed as spare parts for repair.
Please note that there are two different type of IC514.
Be sure to use right one when it's changed.

• New spare parts

Board Name	Ref. No.	Part No.	Description	Remarks
Main	IC504	8-759-176-08	IC μPD75518GF-108-3B9	
MD servo	IC514	8-759-173-76	IC μPD78136GF-030-3B9	Not substitute
		8-759-178-11	IC μPD78136GF-031-3B9	

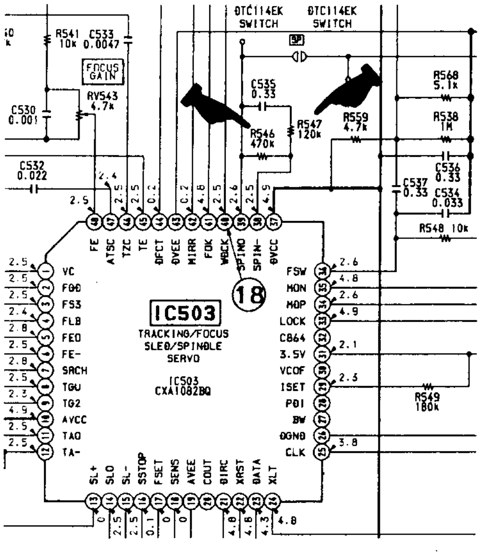
• Change notice for IC514 (Mechanism control microcomputer)

The sets is used three different type of IC514.
Be sure to use right one with the following chart when it's changed.

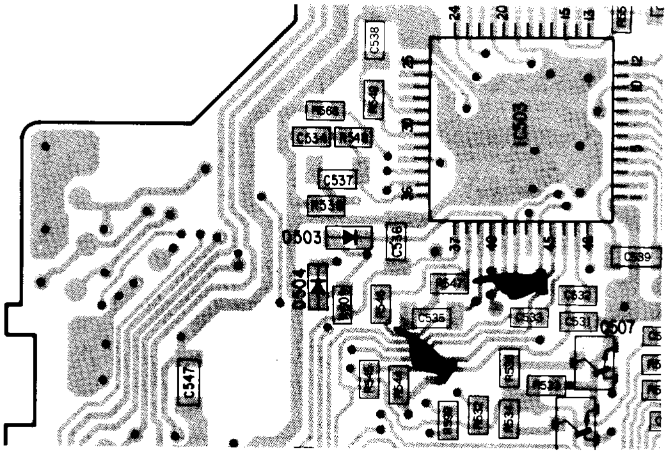
The type of microcomputer for mass-production	The type of microcomputer for repair		Treatment	
	Part No.	Description	Part No.	Description
μPD78138	8-759-173-76	μPD78136GF-030-3B9	R546 470kΩ → 1-216-849-11 R547 120kΩ → 1-216-843-11	METAL CHIP 220kΩ 5% 1/16W METAL CHIP 68kΩ 5% 1/16W
μPD78136GF-030-3B9	8-759-173-76	μPD78136GF-030-3B9		
μPD78136GF-031-3B9	8-759-178-11	μPD78136GF-031-3B9		

• R546, R547 Location

[MD SERVO BOARD]


DTC114EK SWITCH
DTC114EK SWITCH
R541 10k
C533 0.0047
FOCUS GAIN
RV543 4.7k
C530 0.001
C532 0.022
C535 0.33
R546 470k
R547 120k
R559 4.7k
R568 5.1k
R538 1M
C536 0.33
C537 0.33
C534 0.033
R548 10k
R549 180k
18
IC503
TRACKING/FOCUS
SLED/SPINDLE
SERVO
IC503
CXA1082BQ
FE
ATSC
TZC
TE
DFCT
DVEE
MIRR
FOK
WBCK
SPINO
SPIN-
DVCC
VC
FGO
FS3
FLB
FEO
FE-
SRCH
TGU
TG2
AVCC
TAO
TA-
FSW
MON
MDP
LOCK
C864
3.5V
VCOF
ISET
PDI
BW
DGND
CLK
SL+
SLO
SL-
SSTOP
FSET
SENS
AVEE
COUT
DIRC
XRST
DATA
XLT

[MD SERVO BOARD] (CONDUCTOR SIDE)


IC503
C538
C534
R546
C537
D503
C536
D504
C547
R547
C535
C539
C531
Q507
24
30
45
40
37

MDX-U1/U1RDS

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AEP Model
MDX-U1RDS

CORRECTION-1

Correct your service manual supplement-1 as shown below.

Page	INCORRECT			CORRECT	
	No.	Part No.	Description	Part No.	Description
			< SWITCH >		< SWITCH >
16	SW1	1-672-037-41	SWITCH (FM)	1-692-037-31	SWITCH (FM)
	SW2	1-672-037-41	SWITCH (AM)	1-692-037-31	SWITCH (AM)
	SW3	1-672-037-41	SWITCH (▲)	1-692-037-31	SWITCH (▲)
	SW4	1-672-037-41	SWITCH (+)	1-692-037-31	SWITCH (+)
	SW5	1-672-037-41	SWITCH (SEL)	1-692-037-31	SWITCH (SEL)
	SW6	1-672-037-41	SWITCH (AMS ▶▶|/SEEK +)	1-692-037-31	SWITCH (AMS ▶▶|/SEEK +)
	SW7	1-672-037-41	SWITCH (AMS |◀◀/SEEK -)	1-692-037-31	SWITCH (AMS |◀◀/SEEK -)
	SW8	1-672-037-41	SWITCH (DISC ▶▶/SEEK +)	1-692-037-31	SWITCH (DISC ▶▶/SEEK +)
	SW9	1-672-037-41	SWITCH (DISC ◀◀/SEEK +)	1-692-037-31	SWITCH (DISC ◀◀/SEEK +)
	SW10	1-672-037-41	SWITCH (MUTE)	1-692-037-31	SWITCH (MUTE)
	SW11	1-672-037-41	SWITCH (FILE)	1-692-037-31	SWITCH (FILE)
	SW12	1-672-037-41	SWITCH (BTM/M, SCAN)	1-692-037-31	SWITCH (BTM/M, SCAN)
	SW13	1-672-037-41	SWITCH (SCRL/SENS)	1-692-037-31	SWITCH (SCRL/SENS)
	SW16	1-672-037-41	SWITCH (CD)	1-692-037-31	SWITCH (CD)
	SW17	1-672-037-41	SWITCH (MD)	1-692-037-31	SWITCH (MD)
	SW18	1-672-037-41	SWITCH (OFF)	1-692-037-31	SWITCH (OFF)
	SW19	1-672-037-41	SWITCH (-)	1-692-037-31	SWITCH (-)
	SW20	1-672-037-41	SWITCH (DSPL)	1-692-037-31	SWITCH (DSPL)
	SW21	1-672-037-41	SWITCH (1/INTRO)	1-692-037-31	SWITCH (1/INTRO)
	SW22	1-672-037-41	SWITCH (2/REPEAT)	1-692-037-31	SWITCH (2/REPEAT)
	SW23	1-672-037-41	SWITCH (3/SHUF)	1-692-037-31	SWITCH (3/SHUF)
	SW24	1-672-037-41	SWITCH (4/BANK)	1-692-037-31	SWITCH (4/BANK)
	SW25	1-672-037-41	SWITCH (5)	1-692-037-31	SWITCH (5)
	SW26	1-672-037-41	SWITCH (6)	1-692-037-31	SWITCH (6)

MICROFILM
9-957-636-91

Sony Corporation
Mobile Electronics Group

English
94A0583-1D
Printed in Japan
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AEP Model
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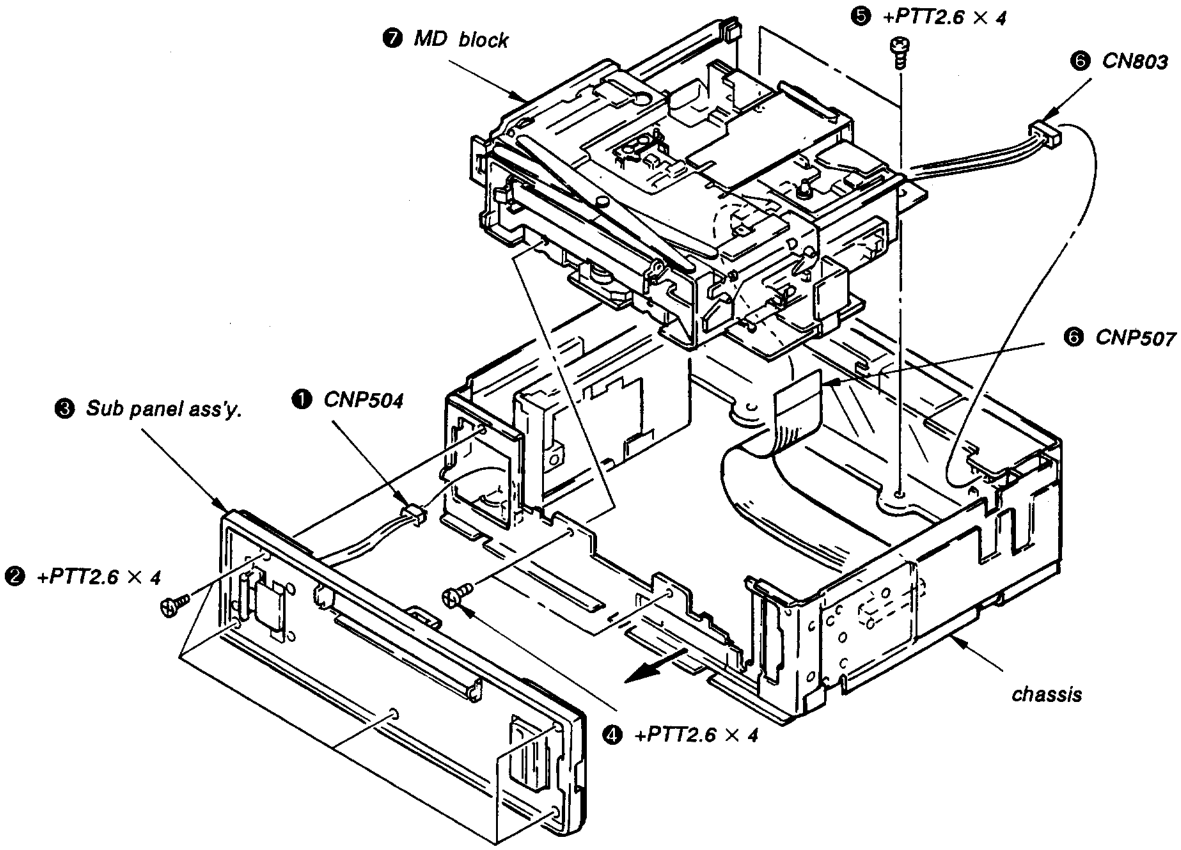
SUPPLEMENT-1

File this supplement with the service manual.

Subject:
- **Disassembly.**
- **Adjustments.**
- **Keyboard unit Diagram.**
- **Keyboard unit Electrical Parts List.**

SECTION 1
DISASSEMBLY

MD BLOCK


❺ +PTT2.6 × 4
❼ MD block
❻ CN803
❻ CNP507
❸ Sub panel ass'y.
❶ CNP504
❷ +PTT2.6 × 4
chassis
❹ +PTT2.6 × 4

SECTION 2
ADJUSTMENTS

2-1. TEST MODE

Make the Test Mode.

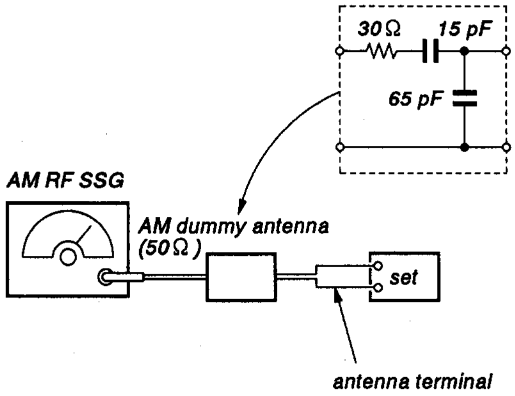
1. Set the "OFF" condition.
2. Push $\boxed{4}$ button.
3. Push $\boxed{5}$ button.
4. Press $\boxed{1}$ button for two seconds.
   Then the display indicates 4 patterns and stops,
   The test mode is set.

2-2. TUNER SECTION

AM (MW) Auto Scan/Stop Level Adjustment

Setting:

BAND switch : AM or MW

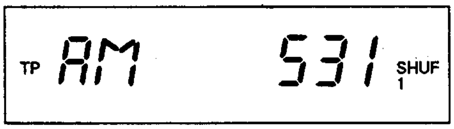

30Ω
15 pF
65 pF
AM RF SSG
AM dummy antenna
(50Ω)
set
antenna terminal

Frequency: *1,000 kHz (US/Canadian/E)*
999 kHz (AEP/UK/E/G)
Output level: *30 dB μV (31.8 μV)*

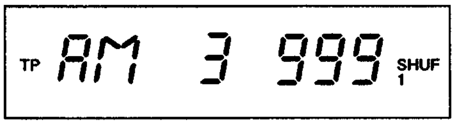
Procedure:

1. Set to the test mode. (See left.)
2. Push the tuner button and set to AM (MW).

Display window (EX.: 2 band model 9 kHz step when 10 kHz step; 530)


TP
AM
531
SHUF
1

3. Push the preset $\boxed{3}$ button.


TP
AM
3
999
SHUF
1

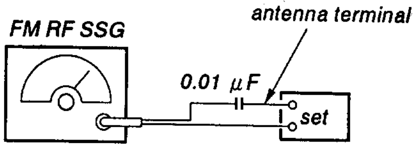
(EX.: 2 band model 9 kHz step, when 10 kHz step; 1000)

4. Adjust with the volume on TU10 so that the "AM (or MW)" indication turns to "AM0 (or MW0)" indication on the display window.

FM Auto Scan/Stop Level Adjustment

Setting:

BAND switch : FM

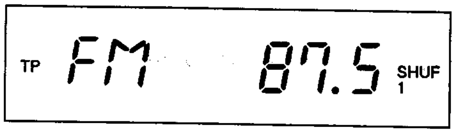

FM RF SSG
antenna terminal
0.01 μF
set

Carrier frequency:	*97.9 MHz (US/Canadian)* *98.0 MHz (AEP/UK/E/G)*
Output level:	*25 dB (18 μV) (Except RDS model)* *22 dB (13 μV) (RDS model)*
Mode:	*mono: unmodulated*

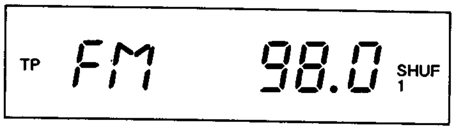
Procedure:

1. Set to the test mode. (See page left.)
2. Push the tuner button and set to FM.

Display window (EX.: AEP, UK, E, G model.
US, Canadian model; 87.9)


TP
FM
87.5
SHUF
1

3. Push the preset 3 button.


TP
FM
98.0
SHUF
1

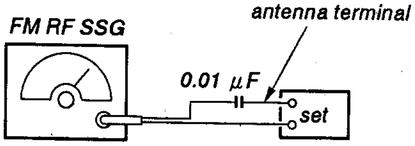
(EX.: AEP, UK, E, G model.
US, Canadian model; 97.9)

4. Adjust with the volume on TU10 so that the "FM" indication turns to "FM0" indication on the display window.

S Meter (35dB) Adjustment

Setting:

BAND switch : FM


FM RF SSG
antenna terminal
0.01 μF
set

Carrier frequency:	*97.9 MHz (US/Canadian)* *98.0 MHz (AEP/UK/E/G)*
Output level:	*35 dB (56.2 μV) (Except RDS model)* *32 dB (39.8 μV) (RDS model)*
Mode:	*1kHz: unmodulated*

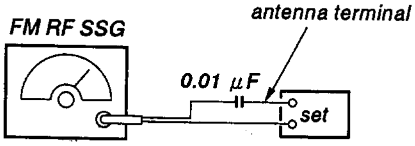
Procedure:

1. Adjust with RV9 so that the voltage on TP S meter (35dB)goes 2.0 ± 0.1V(except RDS model), Vref × 0.375 $\pm^{0.2}_{0}$ V(RDS model). Vref :Voltage on Pin (58) of IC601.

S Meter (70dB) Adjustment

Setting:

BAND switch : FM


FM RF SSG
antenna terminal
0.01 μF
set

Carrier frequency:	*97.9 MHz (US/Canadian)* *98.0 MHz (AEP/UK/E/G)*
Output level:	*70 dB (3.15mV)*
Mode:	*1kHz 75 deviation*

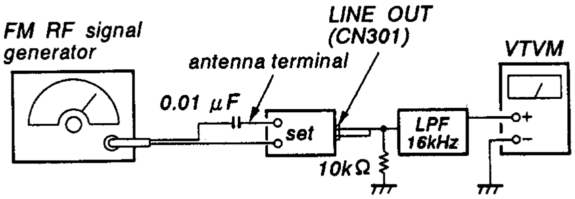
Procedure:

1. Adjust with RV2 so that the voltage on TP S meter (70dB) goes 4.5 $\pm^{0.2}_{0.5}$V.

FM Stereo Separation (4dB) Adjustment

Setting:

BAND switch : FM


FM RF signal generator
LINE OUT (CN301)
antenna terminal
VTVM
0.01 µF
set
LPF 16kHz
10kΩ
+
–

Carrier frequency: *97.9 MHz (US/Canadian)*
98.0 MHz (AEP/UK/E/G)
Output level: *40 dB (100 µV)*
Mode: *stereo*
Modulation: *main; 1 kHz, 33.75 kHz deviation (45%)*
sub; 1 kHz, 33.75 kHz deviation (45%)
19 kHz pilot; 7.5 kHz deviation (10%)

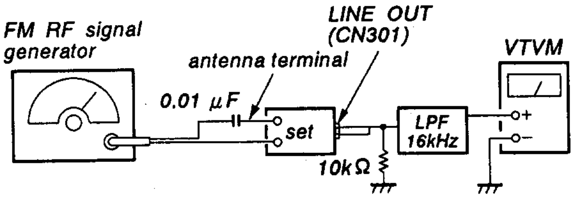
Procedure:

1. Adjust with RV6 so that the LINE OUT level goes 9 ± 1dB.

FM Stereo Separation (70dB) Adjustment

Setting:

BAND switch : FM


FM RF signal generator
LINE OUT (CN301)
antenna terminal
VTVM
0.01 µF
set
LPF 16kHz
10kΩ
+
–

Carrier frequency: *97.9 MHz (US/Canadian)*
98.0 MHz (AEP/UK/E/G)
Output level: *70 dB (3.15mV)*
Mode: *stereo*
Modulation: *main; 1 kHz, 33.75 kHz deviation (45%)*
sub; 1 kHz, 33.75 kHz deviation (45%)
19 kHz pilot; 7.5 kHz deviation (10%)

Procedure:

1. Adjust with RV4 to the best separation

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV2 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV2 for minimum reading.

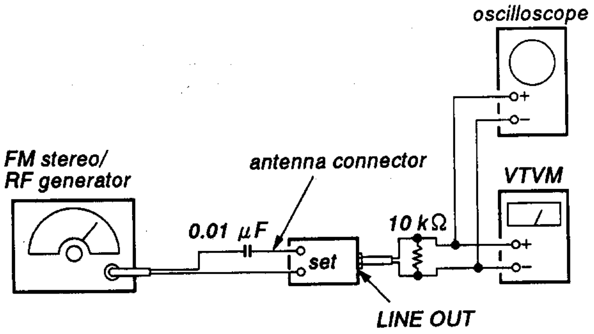
L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ
The separations of both channels should be equal.
Adjustment Value : – 28dB

Adjustment Location: MAIN board

FM Carrier Leak Adjustment

Setting:

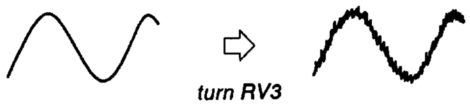
BAND switch : FM


oscilloscope
FM stereo/ RF generator
antenna connector
VTVM
0.01 µF
10 kΩ
set
LINE OUT
+
–

Carrier frequency: *97.9 MHz (US/Canadian)*
98.0 MHz (AEP/UK/E/G)
Output level: *70 dB µV (3.15 mV)*
Modulation : *main; 1 kHz, 33.75 kHz deviation*
sub; 1 kHz, 33.75 kHz deviation
19 kHz pilot; 7.5 kHz deviation

Procedure:

1. Check the waveform on the oscilloscope screen becomes as follows when turning RV3.



2. Set the modulation 19 kHz pilot only.
3. Adjust with RV3 so that the 19 kHz signal becomes minimum on both channels L and R.

2-3. MD SECTION

Preparation before Starting Adjustments

1. Put the unit in TEST mode. (See page 2.)
2. Press MD, and the illumination turns on.
   Press 4 (STOP) to put the unit in STOP mode.
   Under this condition, the functions of each key are set as follows:
   1 = FOCUS ON
   2 = TRACKING ON
   3 = LASER ON
   4 = STOP
   ◀◀ DISC ▶▶ =SLED RVS/FWD
   ◀◀ AMS ▶▶ =AMS ± (Only for PLAY mode)
   OFF =RESET (REST MODE RELEASE)
3. Set the DISC in position. "SHUF 1" is lit. Be careful with automatic setting of "VOL MAX PLAY".
4. Setting 1 → 2 put the unit into PLAY mode without reproducing sound.
   In normal (with sound reproduced)·PLAY mode, the data is retrieved intermittently. In this (muted) PLAY mode however, an eye pattern of continuous data retrieval can be observed on an oscilloscope. If sound reproduction is desired, setting FM → MD plays back a sound of "VOL MAX PLAY".
5. Adjustments shall be carried out in TEST mode in order of the adjustment sections that follow this preparation section.

Laser Power Adjustment

There are two methods as follows:

- Method by using a laser power wattmeter
  Press 3 to turn on the laser diode.
  Adjust the position of the optical block with the ◀◀ DISC ▶▶ key.
  Adjust RV529 for a laser output of 820 ± 5 μW at 780 nm.
- Method by observing an eye pattern
  Set a premaster DISC in position.
  Put the unit in PLAY mode.
  Adjust RV529 for an eye pattern of 1.5 Vp-p.

FOK OFFSET Adjustment

Connect a VOM between pin ① (VR) and pin ㉝ (ABCD) of IC502.
Press 3 (LASER ON), and adjust RV510 for − 200 ± 50 mV on the VOM.
Press 4 (STOP).

TRACKING OFFSET Adjustment

Connect the VOM between pin ① (VR) and pin ㉔ (TE) of IC502.
Press 3 (LASER ON), and adjust RV521 for 0 ± 50 mV on the VOM.
Press 4 (STOP).

E-F BALANCE Adjustment

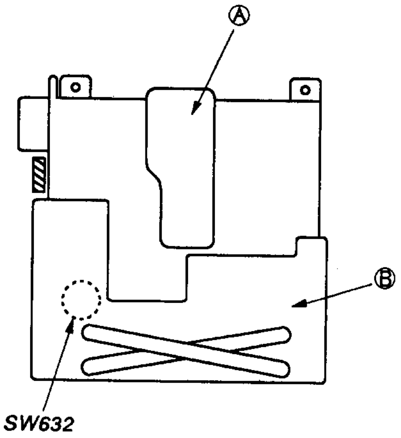
Connect the VOM between pin ① (VR) and pin ㉔ (TE) of IC502.Set the premaster DISC in position.
Press 4 (STOP) before putting the unit in PLAY mode.
Move the optical block once to the most inside of the DISC with ◀◀ DISC, and then press DISC ▶▶ once.
Press 1 (FOCUS ON), and adjust RV528 for 0 ± 100 mV on the VOM.
(Use a digital VOM for reading a level within 0 ± 100 mV.)
Remove the premaster DISC from the unit.

FOCUS BIAS Adjustment for Record/Playback Type DISC

Connect the VOM between pin ① (VR) and pin ㉒ (FE) of IC502.
Press 3 (LASER ON), and adjust RV518 for −200 ± 10 mV on VOM.
Press 4 (STOP).

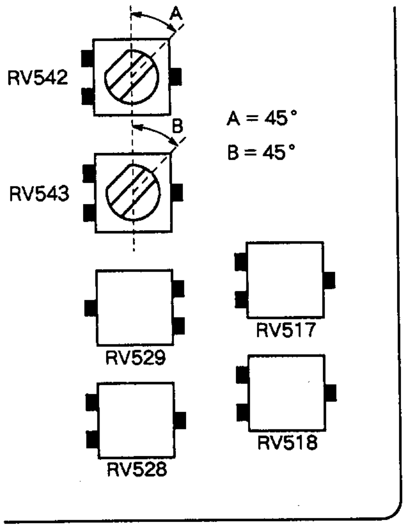
FOCUS BIAS Adjustment for Playback Only Type DISC

Connect the VOM between pin ① (VR) and pin ㉒ (FE) of IC502.
Set the unit in quasi DISC loaded condition without a DISC, by pushing loader (R) Ⓑ while holding stopper Ⓐ lifted slightly upward.
Press 4 (STOP) before the unit goes into EJECT mode with its display indicating an error condition.
Press 3 (LASER ON) while holding SW632 (DISC type detector) pressed with the finger.
Adjust RV517 for 0 ± 10 mV on the VOM.
Press 4 (STOP).

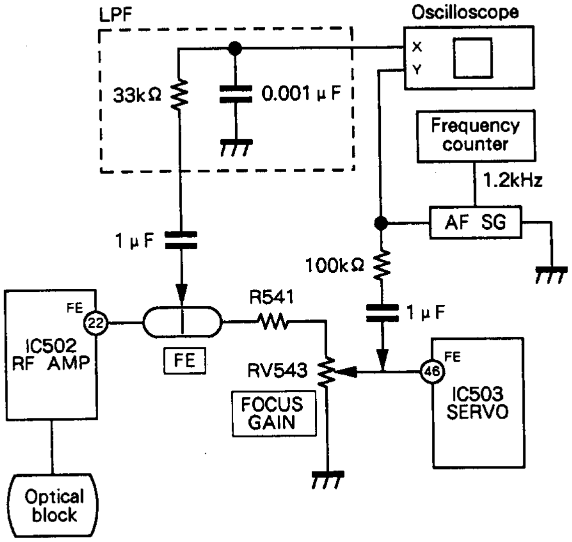


FOCUS/TRACKING GAIN Adjustments

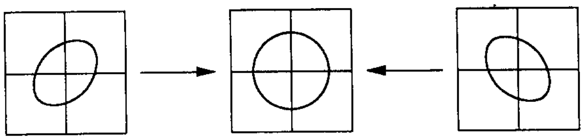
Set both RV542 and RV543 where turned clockwise by 45 degrees, as shown below.


A
RV542
B
A = 45°
B = 45°
RV543
RV529
RV517
RV528
RV518

1. FOCUS GAIN Adjustment


LPF
Oscilloscope
X
Y
33kΩ
0.001 μ F
Frequency counter
1.2kHz
AF SG
1 μ F
100kΩ
R541
1 μ F
FE
22
IC502
RF AMP
FE
RV543
FOCUS GAIN
FE
46
IC503
SERVO
Optical block

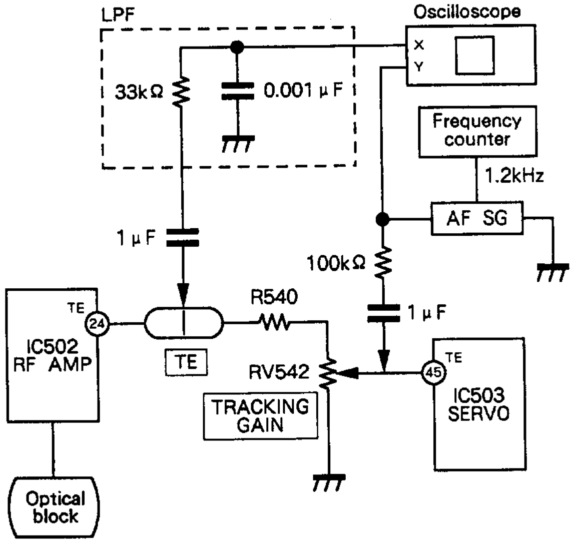
(Waveforms observed on the oscilloscope)



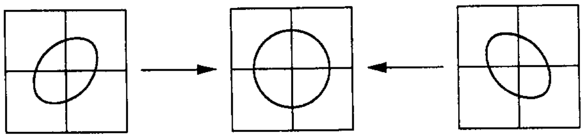
(a) Gain is too low. (b) Gain is appropriate. (a) Gain is too high.

Play back an MO disk, and then adjust RV543 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.

2. TRACKING GAIN Adjustment


LPF
Oscilloscope
X
Y
33kΩ
0.001 μ F
Frequency counter
1.2kHz
AF SG
1 μ F
100kΩ
R540
1 μ F
TE
24
IC502
RF AMP
TE
RV542
TRACKING GAIN
TE
45
IC503
SERVO
Optical block

(Waveforms observed on the oscilloscope)



(a) Gain is too low. (b) Gain is appropriate. (a) Gain is too high.

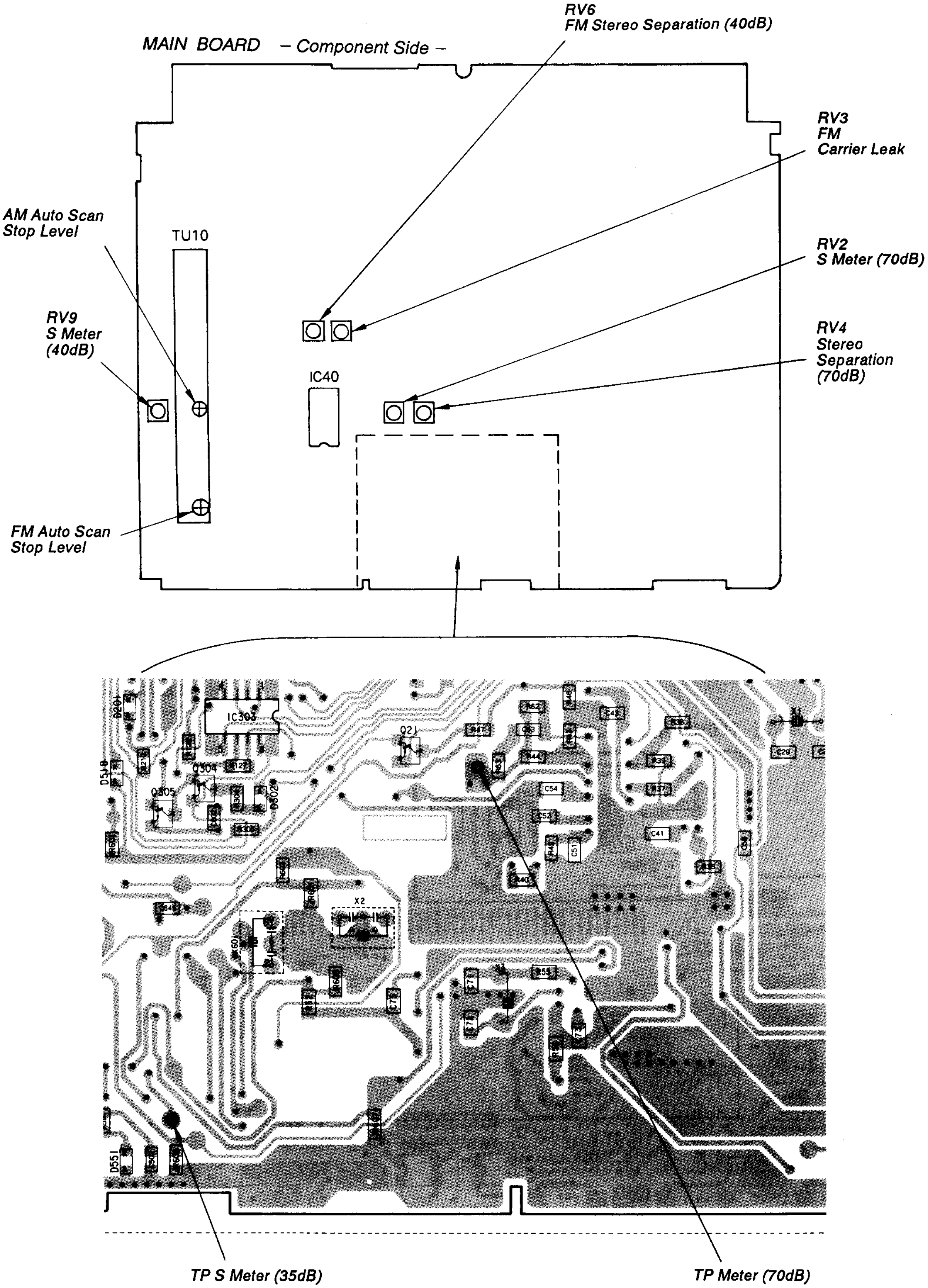
Play back the MO disk, and then adjust RV542 so that the waveform observed on the oscilloscope is symmetrical to the vertical line at the center, as shown in (b) in the figure.

Description of ERROR Indication in MD Mode

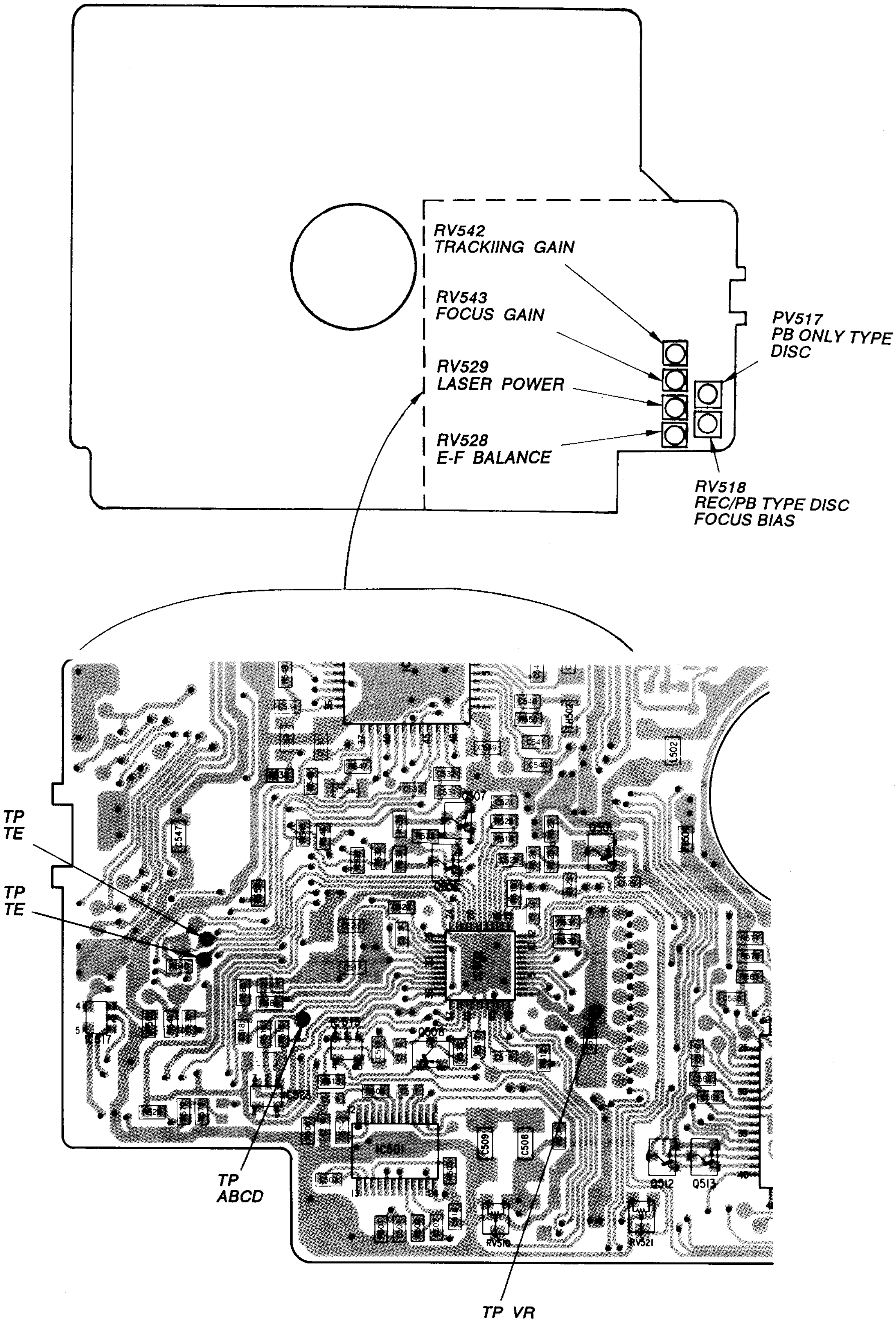
A functional error of the unit is displayed as "ERR – n1n2n3n4".
Items indicated with "n3" and "n4" mean nothing in particular.
The list below shows the error items indicated with "n1" and "n2".

n1	n2	Description
1	*	● Servo control error
	1	● Focusing error → • Focusing is not achieved in MD PLAY mode. • A condition of FOK = "L" continues for 80 ms in MD PLAY mode, and all servo circuits are deactivated. Focusing is failed again after AGC is turned off.
	2	● GFS or LOCK error → • GFS is not activated in four seconds after setting to CLV-A with focusing achieved successfully. Or, focusing is deactivated once after that time, but it is not achieved again. • When a condition of GFS = "L" continues for 2 seconds in MD PLAY mode, CLV/TRACKING/SLED servo loops are set open once. Then, the servo loops are closed again after 600 ms from that time, by moving the sled for 50 ms for the MO DISK (no movement of the sled for the premaster DISK). However, GFS is not activated in four seconds. • When the servo circuits are not locked for 100 ms, TRACKING/SLED servo loops are set open once. Then, the servo loops are closed again, waiting for GFS to be activated. However, GFS is not activated in four seconds from that time.
	3	● SUB-Q error → When SUB-Q (for the premaster DISC) or ADIP (for the MO DISC) cannot be retrieved for four seconds, all servo circuits are deactivated once. After 600 ms from that time, the focusing servo circuit is activated. However, the focusing is not achieved.
	4	● SYNC error → When SYNC is not detected for 3.5 seconds, TRACKING servo circuit is deactivated once, and the sled is moved to the inside for 150 ms. Then, TRACK/SLED servo circuits are activated again. However, focusing is not achieved this time.
	F	● NG DISC → A HYBRID DISC is loaded.
D	*	● HIGH TEMPERATURE error
F	*	● Control error on the mechanisms of the deck.
	1	● EJECT time-out error When time for loading (7 seconds allowed as maximum) is over, eject operation is started. However, time for eject operation is also over (5 seconds allowed as maximum).
	8	● LOAD time-out error When time for eject operation (5 seconds allowed as maximum) is over, loading is started. However, time for loading is also over (7 seconds allowed as maximum).
	9	● Repetitive time-out error When time for eject operation (5 seconds allowed as maximum) is over, loading is started. But, the unit repeats eject operation. However, eject operation failed finally after the unit is tried eject operation three times (the DISC is chucked in this case).

- **Adjusting Parts Location**


MAIN BOARD – Component Side –
RV6
FM Stereo Separation (40dB)
RV3
FM
Carrier Leak
AM Auto Scan
Stop Level
TU10
RV2
S Meter (70dB)
RV9
S Meter
(40dB)
RV4
Stereo
Separation
(70dB)
IC40
FM Auto Scan
Stop Level
IC303
Q21
Q304
Q305
X2
D551
TP S Meter (35dB)
TP Meter (70dB)

MD SERVO BOARD – Component Side –


RV542
TRACKIING GAIN
RV543
FOCUS GAIN
RV529
LASER POWER
RV528
E-F BALANCE
PV517
PB ONLY TYPE DISC
RV518
REC/PB TYPE DISC FOCUS BIAS
TP TE
TP TE
TP ABCD
TP VR